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ABSTRACT

This book contains papers presented at the Fourth International Reading Association World Congress on Reading in Buenos Aires, Argentina, in August 1972. The contents of the book are divided into three parts: "Literacy and Literature" includes papers on libraries, books, and reading by Jorge Borges, the future of reading by Theodore Harris, the Right to Read project by Ruth Holloway, and International Book Year 1972 by Ralph Staiger. "Influences on Reading" includes papers on psychological and cultural factors in learning to read by George Spache, dialect and bilingualism by Joseph Fisher, variables acting upon the reading process by Berta de Braslavsky, and the influence of teaching on reading achievement by Ethel King; "The Teaching of Reading" includes papers on promoting reading ability by Constance McCullough, reading research by Eve Malmquist, critical reading by Helen Smith, reading rate by Allen Berger, and standardized reading tests by Roger Farr. (WR)

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READING FOR ALL

ROBERT KARLIN, *Editor*
Queens College
City University of New York

Proceedings of the
Fourth IRA World Congress on Reading
Buenos Aires, Argentina
August 3–5, 1972

CS 000 848

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Foreword

THE FOURTH IRA WORLD CONGRESS ON READING convened in Buenos Aires, Argentina, in August 1972. The theme of the Congress—"Reading for All"—is reflected in the title of this publication. Papers representing the scholarship of many countries throughout the world are contained in this volume.

As was true in the preceding three IRA World Congresses on Reading, multiple emphases were apparent in the program of the 1972 Congress. The concern of scholars and of governments for the development of world literacy was amply evidenced. That man should read, not only to increase his economic and social competency, but to enrich his inner life is evidenced by the title of the group of papers in Part 1, "Literacy and Literature."

The Congress afforded scholars an opportunity to compare their research on the various factors which influence reading development. It is of interest to observe that, while representing international research and points of view, the topics of the papers in Part 2, "Influences on Reading," are similar to those presented at regional and national conferences in many parts of the world.

Part 3 of this collection of papers, "The Teaching of Reading," again reflects the thinking of men and women from diverse parts of the world. Here are recorded the professional beliefs and the recommendations of leaders in reading instruction from many nations.

The International Reading Association wishes to express its appreciation for the scholarly guidance of Presidents Theodore Harris and William Durr, under whose tenures of office the Congress was developed. Appreciation is also expressed to the Program Committee on the Congress: Robert Karlin, United States, Chairman; Julia Polito Castro, Argentina; Marie Clay, New Zealand; Eloísa de Lorenzo, Uruguay; Eve Malmquist, Sweden; and Ralph Staiger, United States. Finally, the gratitude of the Association and of all who will use this publication is expressed to Professor Karlin for the able manner in which he edited these papers.

Millard H. Black, *President*
International Reading Association
1973–1974

Unesco Message to the International Reading Association

SINCE the ultimate aim and justification for books is the reader, Unesco is pleased to salute the International Reading Association at its Congress in Buenos Aires. Over the years our two organizations have collaborated increasingly on the vital task of encouraging the development of the reading habit which is so basic to individual self-fulfillment and, particularly in the developing countries, to education, economic, and social progress.

In 1972 when the world marks International Book Year, Unesco is particularly appreciative of the efforts made by the International Reading Association and its special international committee for the year. Programmes that have been started during 1972 have implications which go well beyond 1972. There is need to improve the teaching of reading on a continuing basis so as to develop lifelong habits that can provide full integration of the individual in a complex modern world.

Research now underway by the International Reading Association and its national affiliates can do much to provide answers useful to all countries of the world. It is our hope, therefore, that these studies will be continued and even intensified; that more and more there will be efforts to provide international comparability of data that is vital to Unesco's own endeavours; and that IRA will continue to lend its support to Unesco's manifold activities on behalf of education, science, and culture.

Welcoming Address

GUSTAVO MALEK

MINISTER OF CULTURE AND EDUCATION
ARGENTINA

UNDER the theme "Reading for All," Congress participants will have an opportunity to discuss and analyze new and vital means to strengthen the importance of the book as a cultural and developmental factor for our people. If we take into account the impetus that has converted the book into one of the main communication media, a condition fostered by new procurement and distribution techniques as well as by the increase of demand due, among other factors, to the increase in population and leisure time and to the rise of the cultural level, we cannot help accepting the Unesco statement that describes present developments as the "Book Revolution."

In view of the tremendous importance of the book as a means of communication, the realization of this Congress is a good omen for the future; it will be a major force in making possible better utilization and mastery of the book.

In order to enjoy the benefits of education and culture, it is particularly important that we find the best procedures to achieve these objectives. Every Unesco proposal—e.g., those regarding the production of books, the development of libraries, the promotion of reading habits, and the use of the book as a tool of education, international understanding, and cooperation—represents the means of insuring the success of this book revolution.

It is imperative, then, that we devote our energies to the search for formulas which will enable us to carry out the revolution and enjoy its benefits. The harmonious development and the future of our people depend upon the success of the book revolution. The task ahead is gigantic and, perhaps, overwhelming, but whatever achievements one realizes are bound to make significant differences in life.

The International Reading Association attempts, through its publications, to provide a forum for a wide spectrum of opinion on reading. This policy permits divergent viewpoints without assuming the endorsement of the Association.

LITERACY AND LITERATURE

JORGE LUIS BORGES

NATIONAL LIBRARIES OF ARGENTINA
BUENOS AIRES, ARGENTINA

Libraries, Books, and Reading

OF ALL TOOLS invented by man, I believe none can be compared with the book. The other tools are extensions, mechanisms of that other mechanism that, as Samuel Butler has said, is our body. The telescope and microscope are extensions of our eyes; the gun and plow are extensions of our arms; vehicles, of the body in general. The book is an extension of something more intimate: the book is an extension of memory and imagination.

This point is important because what would happen to personal identity if each of us were without memory? Without memory we would be simply our present perceptions. Seneca observed that animals ignore time, or as it was said beautifully by Yeats, "man has invented death or has created death"; that is to say, animals "live in pure present, without past and therefore without future."

The book is an extension of memory; without the book we wouldn't have history, and our present would be what we are in each instance, which almost does not exist. Hindu philosophers say that the fruit is on the branch or is on the ground, but there is no moment during which it is falling from the tree. The moment I speak belongs to the past, but the book has given us history. The book is the memory of humanity.

Emerson, in his essay *On Books,* says that a library is like a magic laboratory and that in that laboratory there are the spirits of the dead; but those spirits are only silent and dead until we release them. In other words, a book by itself is a thing among other things, a physical object among other physical objects, but a book comes alive when we open it and read it. To open a book is to pronounce the word "sesame," the name of the golden caverns of the book, *A Thousand and One Nights,* or *The Thousand Nights and One Night* as it was translated by Captain Burton.

That is the reason why I see in the book something different; and it is useless to hide the fact that at the present time the book which gives us history and mythology and which makes us know the great dead and the best moments of those great dead—the book that allows us to talk with Socrates and with Christ and with Plato, with Emerson and with Sarmiento—this book is threatened now. Paradoxically it is threatened by the abundance of books.

Schopenhauer says that along with books should be sold the time to read them. Too many times one confuses the possession of a book with the possession of the contents. We acquire a book, we think it takes this or that place on the shelf, and then we believe we have read it.

The book is also threatened by the newspaper; the difference is not so much in the material printed but that each is read differently. And the reading is essential.

It is assumed that reading presupposes the book; the book is dead until we read it or, more importantly, we reread it. Instead, there are other means of communication—newspapers, television, records—that seem made to be forgotten. We know, for instance, that newspapers are similar to pamphlets, like one of those medieval codes in which each text was erased by the preceding text; that is, there are other means of communication, other ways of reading materials that are read to be forgotten; but the book is read for the memory.

This factor I have been able to verify personally and sadly since 1955, the year of the Liberating Revolution, the year in which it was obvious I couldn't read. I believed that my memory had improved, but that wasn't so. What had happened was that before, when I could read, I knew my reading could be, without too much danger, superficial, because I could take the time at any time. But now that I read through other eyes and other memories younger than mine, I know I must pay attention to what I am reading and, therefore, I read better.

It is the essential aim of this reunion that reading become a habit acquired during childhood. I was lucky to have been educated not only in schools—that was secondary—but in my father's library. My father allowed me to read any book, and so I read in all innocence the explicit revelations of Captain Burton's *A Thousand and One Nights*.

When I remember my childhood, I think less of the neighborhood than of my father's library, and I think of those books that revealed the world to me. I think, for instance, about the Quixote, of Sarmiento's *Facundo*, of Stevenson, of Kipling, of Wells, and of even lesser known authors; I think of Ruben Gutierrez' novels.

I was then accompanied throughout my life, and I know now—one of the few things I am sure of because time is teaching me to see doubts and not truisms—that what is most important is to develop an affinity for reading. At the beginning, one may read anything. To begin with reading bad books does not matter.

I am a professor, and I shouldn't say that I fail to believe in compulsory reading; but I believe that we must think about reading as a pleasure. We must think about reading in a melodic way, if this word is not too pedantic. Once we have become accustomed to reading, we will arrive at

the essential books of humanity. Perhaps in medieval times they were happier than we are today because each book wasn't covered by a next book; there were fewer books, but those books were read and reread. Now there is almost an infinite number of books, a phenomenon which means that virtually there are none.

The future depends on us. It doesn't depend, of course, on old men like me who can have little influence; it depends on children and, to a great extent, on what children read. Life has brought me some unhappiness, as is its habit, but it has brought me happiness, too; and one of the best parts is my habit for the book—for books in different languages, for books that have allowed me to be not only a geographical traveler but a secondary traveler as well. I want to express my gratitude to the book and my best wishes for the noble enterprise in which IRA is involved.

MARION D. JENKINSON

UNIVERSITY OF ALBERTA
EDMONTON, ALBERTA, CANADA

Reading and Diversity

WORDS—those symbols which distinguish man from all other animals and allow him to bridge the gap between one individual and another—these very words today, perhaps for one of the few times in my life, I find completely inadequate. Nothing I could say or do would convey the complexity of my feelings at this time.*

I accept this honour with gratitude and humility and a sense of wonder. "Muchas gracias"; "Tusind tak"; "Merci beaucoup"; and "Thank you so very much."

When I first learned I had been chosen to receive the IRA International Citation of Merit, my thoughts reverted to Dr. W. S. Gray, the real father of the International Reading Association. In 1955 I had the good fortune to be Dr. Gray's research associate assisting with the first Unesco publication of *The Teaching of Reading and Writing Throughout the World.* During that year many discussions took place between the two major reading groups in the United States and Canada—the National Association of Remedial Teachers and the International Council for the Improvement of Reading. When these groups merged, I well remember the day that Dr. Gray told me that the new organization was going to be called the International Reading Association, initials IRA. I was horrified. With my British background those initials could mean only one thing—the revolutionary Irish Republican Army. Dr. Gray tried to mollify me by suggesting that this new organization might change the connotation of these initials; well, we may not have achieved that objective yet, but we can keep trying.

These initials, however, continue to have a revolutionary connotation for me. For many years I have viewed reading as a subversive activity—and I discovered that I was not alone. It was interesting to note that Señor Gustavo Malek, in bringing greetings to the IRA Congress used the same metaphor when he spoke of making the weapons of literacy *fight social and economic evils.* And amazingly, our opening speaker, Jorge

* Speech given in accepting the IRA International Citation of Merit at the Fourth World Congress on Reading, Buenos Aires, August 1972.

Luis Borges, also suggested that reading was the greatest invention of man to *fight ignorance* in every field. The pervasiveness of this allusion has been further illustrated in the final major presentation by my friend, Dr. Theodore Harris, when he used the term *arsenal* to describe how reading materials and resources are being marshalled to help teachers.

But perhaps the time has come to change this war-like metaphor. A review of the four centuries since Gutenberg invented the movable type would suggest that the spread of more easily available reading matter has been accompanied by more friction and more wars both within nations and without.

Language—this truly human characteristic—means not only that men can understand one another, they can also misunderstand. Perhaps we have sometimes overlooked the most essential quality that reading, even more than speech, can provide. When I am called upon to defend reading, I build my defense around the word "complexity." All other media simplify and oversimplify experience. They do so unavoidably and of necessity. They do so because they are mass media and, as such, their very existences depend upon their consumption in large quantities. To reach the maximum audience in a competitive market, mass media must aim at the broadest common denominator of taste. The interpretation of experience which results is inadequate because it is inescapably stereotyped as being crude, cheap, and artificial, yet alluring and attractive, frequently exciting. For this is the danger—a frightening danger of mass media: the primitive is nearly always stronger than the civilized.

Now printed materials are not exempt completely from these pressures, but to a considerable degree they are. While our daily curiosity may be satisfied by the great variety of topics covered in newspapers, book writers can afford to deal with life on its own terms recognizing its fragmentary character, its contradictions, its incompleteness, and its intensity. The medium of reading is the only one which conveys the complexity and diversity of human experience—and permits individuality and great freedom of choice within the mass.

I am certain it is a coincidence, albeit a happy one, that this conference closes on the eve of "día del niño" in Argentina—children's day—because our prime concern must always be with the children. They will inherit our world. They should learn through our teaching. It is not enough, however, to give them the "right to read," we must also ensure that they have the "will to read."

In my opening speech to the First World Congress in Paris, I suggested that reading might be the torch which lights the mind, but that fire can destroy as well as purify. I would suggest that we need the light which reading generates to reveal the mosaic of human experience, but we need

its white heat to forge the bonds of toleration. "Tout comprendre, c'est tout pardonner." The art of reading gives us this potential.

The fault is not in our words or in the act of reading but in ourselves. If our ancestors had the wit to create this incomparable instrument we call reading, it should be within our power to ensure that through its use, we human beings will become more humane.

It is to this task that the International Reading Association and all of its members must be dedicated. Let us go forth from this conference to the four corners of the world, each of us committed to fostering toleration of diversity—the most civilized and civilizing benefit that accrues from reading.

THEODORE L. HARRIS

UNIVERSITY OF PUGET SOUND
TACOMA, WASHINGTON
UNITED STATES OF AMERICA

The Future of Reading

WHAT CAN WE SAY of the future of reading? Surely today and tomorrow our projections about the future of reading will continue to stem from the experiences we value, from the insights we glean from the rapidly changing world scene, and from the strength of our aspirations for our fellow citizens of the world. To the extent that we are pragmatists, our projections will tend to be mundane, limited, perhaps even pessimistic. To the extent that we are idealists, our projections will be more far-sighted, more imaginative, more optimistic. To the extent that we seek to combine an awareness of present realities with our hopes for the future, our projections will be hopeful, yet sober, imaginative, yet restrained, forward-looking rather than hobbled by the immediacy of today. Let us attempt to view the future of reading from a point of view that is cognizant of the present yet confident for the future. Let us attempt to discern more clearly the possibilities of tomorrow for the role of reading in our many societies. Let us consider what conditions must be fulfilled to help more people acquire and use this extraordinary tool that distinguishes the literate person.

Values of reading

As I reviewed the splendid set of papers contributed to the Third World Congress in Reading in Sydney on the topic "Challenges for the Future," I was impressed by the sincerity of effort in so many countries to face and solve problems in the teaching of reading in cultures which differ greatly in their linguistic patterns and in their resources to mount an effective attack upon basic illiteracy. I was stimulated, also, by the potential of some of the fantastic technological aids for teaching reading described by Nila Banton Smith. I was enthralled, too, by the observations and recommendations by that wise and witty champion of reading development on the international scene, Constance McCullough. I shall not attempt to reiterate what they and others have said so ably about the

future of reading, although it will be difficult to avoid some of the fundamental concerns expressed in these essays.

We may well approach the question of the future of reading by asking once again the question "Why do people read?" I suggest that an examination of this question may yield a number of significant implications for the future role of the teacher and student, for the use of methods and materials of teaching reading, and for the conduct of social institutions and agencies responsible for reading programs and personnel.

With reference to the future, when we ask the question "Why do people read?" we are also asking by implication, "Will people continue to read in the future?" In either case we are dealing with the single most fundamental condition of living and learning—motivation. For only to the extent that we understand the basic motivations of people to read can we intelligently plan the goals and strategies of preparing future teachers of reading, determine the optimum conditions under which future students can learn to read more effectively, and exercise wisdom in the choice of materials and methods to meet these motivations. Only then can we understand why a government is either willing or not willing to give high priority to the development of an educated citizenry. Only then can we understand the full implications of the converse of this question, "Why *don't* people read?"

Waples and colleagues in 1940 identified some of the reasons why people read in the classic volume *What Reading Does to People* (*3*). One important reason for reading was characterized as instrumental—using reading as a tool to acquire knowledge and understanding of the world about us. As it has been aptly said of the eager student:

I am opening windows to look out—
I am opening doors to walk out—
I am opening books to find out—

"Opening books to find out" leads the learner to satisfaction in the power of knowledge which directly meets the basic needs of competence and self-esteem. As we view the world today, surely these rational, cognitive needs remain among the most important reasons for teaching reading whether in a basic literacy program in a technologically undeveloped country or in the context of the severe, advanced literacy demands of a highly technologically developed country. In the world of tomorrow, this motive for reading will inevitably be accentuated, and reading programs will be accelerated far beyond our present conceptions. The satisfaction of this need will challenge to the full our expanding arsenal of technological communications, including telecommunication satellites and their appropriate receivers. I am sure it will be of interest to you to

know that the International Reading Association is now negotiating with an aerospace firm to explore fully the worldwide possibilities of the use of all types of telecommunication facilities for a massive attack upon world illiteracy. The hope is to devise ways of making methods and materials for reading more available to all people. In this way we may better meet one of the underlying conditions that determines why people do or do not read—the accessibility of materials.

But the motives for reading are far more than just self-serving ones in the instrumental sense. We also read to develop and preserve our personal sense of identity and to fulfill the important social needs of gaining the affection and understanding of others. Here we touch upon the immense, vicarious possibilities of reading for the creation of an emotionally satisfying life. For beyond the need to know and understand in the instrumental sense, we also read to cultivate our imaginations through the world of fiction and fantasy—reading for pure joy and for respite from the workaday world. Here is the world of stories for stories' sake. Here is food for growing appetites—for high adventure, for worlds yet to be, and for new acquaintances. We read, too, for aesthetic and philosophic reasons to appreciate the beauty in line and form of material things and ideas. And often we read, do we not, to reinforce our prepared opinions and beliefs and to strengthen our adopted attitudes toward people and ideas.

It is in this realm of human motives, which include but extend beyond mere knowledge, that I sense at once a greater need and a greater hope for the future of reading. As peoples of all nations come to attribute greater dignity and worth to men, women, and children, both the need to learn to read and the satisfactions to be gained through reading will be better realized. While one may well value instrumental reading as the immediate target of a basic literacy program, much more must be done to consummate the full rewards of reading.

We must remember, too, with Waples (*3*), that reading remains unique among the many modes of communication. He writes:

> Print, to be sure, is not the only effective means of mass communication. It is probably not even the most important means of reaching the population directly . . . .
>
> But print still remains the only vehicle of communication which is not restricted to particular times and places, which can present all sorts of ideas to all who can read, and which can develop a subject to any desired fulness of detail . . . . Among the popular media . . . , reading alone proceeds at a rate of speed which the reader himself controls.

The key point made by Waples is that of the control exercised by the reader over the medium. The reader determines what, when, where, why,

how, and how fast he reads. This characteristic is not true of other communication modes which present stimuli to be either seen or heard in a fixed-time sequence. For this reason, reading must always be an active, self-directed task for which the reader must assume more and more responsibility in the future, especially in the face of the blandishments offered by the time-bound pace of speech heard on the radio, television, and tape. Reading, in the best sense, is a private world in which each of us can control his destiny—savoring ideas and impressions here and there, rereading, constructing relationships not always provided by the author, talking back to the author, and testing inferences arising from the author-reader dialogue against our own experiences and those of others. Now and in the future this is a privacy which we must guard zealously in a world often beset by strictures of censorship and propaganda.

A final point must also be raised on the whys and effects of reading. Why, in one of the most technologically advanced nations in the world—the United States—is reading held in such low esteem by many people? This opinion is distressingly prevalent whether we consider the functional illiteracy rate or the maturity of the reading habits of the average adult in that country. It is well known that several other countries have been conspicuously more successful in developing greater proportions of readers in their populations who value reading more highly and who demonstrably have developed self-energized reading habits that serve them well through their adult lives. One may look, as does Asheim (*1*), at the active, hurry-up character of the North American people who tend to use reading only as it suits their active pace and their action-oriented goals, and not as it meets their other needs for reflection, beauty, and enlightenment. Possibly so. I also suspect that the United States has so acutely felt the ever-accelerating shock of an instant communication technology, especially through television, that slowly, subtly, and surely the acceptance of a passive McLuhanism has become more and more palatable to many of our older as well as to our younger, more permissive generation. If this condition be true, then we in the United States and in other societies must recognize that the values of reading, if they are to be enjoyed and exercised, demand a discipline of effort to gain control over the reading processes and the content so that the value-motives enumerated by Waples may be attained. "Reading," Robert M. Hutchins observes, "is the hardest work I do."

Conflicting attitudes in education

It is fashionable in some societies today to decry the value and role of reading. It is also fashionable in some quarters to attack "schooling"

and to present alternative "deschooling" models for education. It is most interesting to observe that the most vocal of these proponents of alternatives to education, to schooling, and indeed to reading are themselves well read, well schooled, and well educated. What many of them sense, I believe, is that educational processes in many instances have become so solidified and institutionalized that these processes have ignored the importance of the human equation, the student-teacher relationship. As a result, they plead for institutions and for approaches to education that reassert the humanistic values of education. This attitude is equivalent to saying, for example, that reading must be taught and learned as a personal enterprise to meet the needs of the learner; it must not merely meet the pseudo-needs of an institution designed to perpetuate itself in the face of the challenges of rapid social change. Reading, if it is to survive as a means of personal and social communication, must meet the authentic needs of learners in satisfying ways. This requirement is what we mean when we say that education, whether in reading or in the broader sense of the total educational experience, must have relevance. The term "relevance" is not an idle one. I would remind you of a recent comment by Wilkinson (*1*) on those in education who disparage the role of relevance in education:

> It's not true that "relevance" is a term used without meaning by the young. Students almost always wish to know what system of things or of thought any "discipline" refers to. When overspecialized teachers can't say just what relevance their subject actually has, they find it agreeable to assert that this demand has no meaning.

The future of reading—how it is taught and how it may be relevantly used—will depend also on the future of the psychology of learning and its related educational processes. For all their brave deeds and postures, the behavioral science of psychology and its neighboring disciplines, such as psycholinguistics and social psychology, are still in an experimental, infant stage. We have conflicting hypotheses about the modification of human behavior today, not established theories. We have models for behavioral change, not demonstrated realities. As we attempt to apply psychological constructs to educational practice, we encounter difficulties choosing among those learning strategies that permit consistent and optimal progress toward complex educational objectives. Jones (*2*) observes:

> Contemporary experimental education is proceeding along two converging paths. . . . "Education in depth" seeks to enliven the educative process from inside the pupil out, by means of freeing his emotions and fantasies for service in his school work; "the new curricula" seeks to enliven the educative

process from outside the pupil in, by means of streamlining the challenges that are carried to the intellect by classroom exercises and materials.

"Education in depth" emphasizes the values to be gained by evoking and utilizing the self-motivation of the learner for creative effort; "the new curricula," reflecting the thought and the work of Piaget, Bruner, and others, stresses the value of understanding the structure of disciplines to be learned in the hope that this understanding will provide incentives for learning and for the transfer of such learning to other tasks. If these, indeed, are the trends in educational practice which hopefully will merge into a new educational psychology at some point, this is a further indication that our understanding of the psychology of learning today and the role of the motivations which undergird it may indeed change in the future. These trends further indicate that perhaps the educational psychology of the future will find a happier blend of the strong behavioristic biases of an Orwell, a Skinner, or a Toffler; of the rational, cognitive stance of a Piaget or a Bruner; and of the frank recognition of the wellsprings of human action and feeling of a Kubie or a Rogers. Those reading processes which, when applied, become more of an art than a science will ultimately serve as the crucial test of the needed resolution of the psychology of learning of today. That resolution, I believe, must have a relevance that is rooted in basic human needs.

Reading for tomorrow

How can reading be taught more successfully in the future? I believe it will be taught more successfully in the future only as our efforts at all levels and stages of reading development are attuned more consciously to the life motives of the reader. Parents, teachers, children, communities, and even whole societies and nations must become a part of this effort to awaken and meet the basic needs of people.

Let heads of state announce that reading is not just a tool for the economic development of the state but for the self-development of their people in the fullest sense of the word. Let societies representing different cultural expectations develop reading programs reflecting the uniqueness of their cultures. Let societies with different language patterns and those with diverse language patterns clearly recognize such patterns as valuable —indeed, indispensible—matrices for the development of reading facility. Let teacher education programs be keyed to the human relationships fundamental to all good teaching so that the teaching of reading with its many options in methods and materials becomes tailored to the needs of the individual. Let the teacher learn to explore with the student more fully the needs of the student in awakening conscious purposes for read-

ing which will serve his needs best and help the student become more selective in choosing materials and ways of reading such materials. Let the teacher, the parent, and the whole community become models of mature reading behavior which will demonstrate better than words the values of reading. Let us use technology for what it can do best—namely, to assist in the development of basic reading skills. But let us also enlist our human resources for what they can do best: Let teachers help create an awareness in students of the full range of the values of reading; provide the human relationships necessary for meeting individual needs; challenge emerging readers to apply their newly found skills and to reflect upon the world of reading now open to them; foster a thoughtful interaction between student and print; and engender appreciation of the beauty of a story well told, the deft turn of a phrase, and the rightness of the right word in the right place.

In our world today which has become increasingly other-centered upward-striving, and organization-bound, it may seem like crying in the wilderness to suggest that the future of reading is inextricably bound in questions relating to our fundamental motives for reading: "Why do we read?" "Why don't we read?" "Will we read tomorrow?" The relatively low status of reading in most societies of the world must be our greatest concern today and in the future. This status can be elevated, I believe, not by just tinkering with the methods and materials of reading but by fully recognizing the totality of the motivating conditions which initiate, guide, and sustain behavioral change, including those which give rise to meaningful control of the skills and uses of reading. The key to the individual's receptivity to change—or for that matter, to change in a whole society—rests upon tapping the basic motives which energize behavior and make change possible. It is instructive to note that poverty, in the view of qualified sociologists, will not be overcome merely by money and new housing but by reawakening people's perceptions of their basic needs which in turn provide the motivational incentives for those poverty stricken to better their lots. Similarly, prison-reform programs in the United States that have been initiated by inmates are far more successful than those imposed from without. In the same vein, the current Right to Read effort in the United States will succeed only insofar as the teachers and students involved in classroom and tutorial programs become engaged in meaningful activities that directly satisfy the needs of the learner. The federal government, the states, and the local school systems can but provide the inspiration, the leadership, and the resources to set the stage for such need-directed activities in the learner.

Reading, and the motives for reading, may be stimulated to a degree by the example of society, a teacher, or a parent. Indeed, they must be.

But the motivation for reading must also arise from within as the learner interacts with such stimulating forces. We must recognize that until the values of reading are perceived as good and important to the learner—until the learner in a psychological sense is willing to take the first step to make reading a part of his own living and learning—he will not truly progress in learning to read nor make reading the powerful instrument for personal and social fulfillment that it can be. This is the challenge of today, tomorrow, and the future: to teach all peoples of the world the values and joys of reading as well as the command of the rigorous but rewarding reading processes needed to satisfy their intellectual and emotional needs. If we succeed, future readers will become self-directed learners; they will have learned how to learn and grow through the need-satisfying experiences of reading. Let us strive to make functional literacy but the stepping-stone to reading maturity in the fullest and best sense of that word so that we can say with Bacon, "Reading maketh a full man." Indeed

Let us open books so all may read—
Let us open doors to learn by reading—
Let us open windows of mind and spirit through reading—

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International Book Year 1972

BOOKS FOR ALL the general theme of International Book Year 1972, had the specific goal of focusing attention on the role of books in the lives and affairs of individuals and society. It would probably be appropriate to say that all who attended the Congress subscribe to the theme, "Books for All," and that most remain engaged, in some way, in the study of the intricate relationships among individuals, books, and society.

It is self evident, however, that if this theme, developed by the sixteenth General Assembly of Unesco in 1970, were to remain a proclamation, buried in the dusty files of the Unesco Building in Paris, no useful purpose would be served. In addition, if the activities of IBY'72 were to have been limited to the calendar year 1972, only a small part of that hopeful phrase, "Books for All," could have been achieved. Each of us must still ask, "How can I put flesh on the bones of the proclamation and breathe life into that flesh?"

Worldwide activities and publications

An examination of the activities which are being engaged in by various international groups, governments, nongovernmental organizations, and individuals is encouraging, but much more needs to be done. It is obvious from an examination of the printed evidence that the book is not dead. Even Marshall McLuhan, prophet of the decline of the written word, has contributed an essay to one of two issues of the Unesco *Courier* which have been devoted to IBY—the January and July 1972 issues (*9, 10*). These journals are excellent sources of information about IBY in many countries. The range is from the distant past—a page from the world's oldest extant book, *The Diamond Sutra,* printed in 868 A.D. in China—to tomorrow, as projected by McLuhan. Alejo Carpentier, the gifted Cuban novelist, contributed Reveries of a Solitary Reader. Included also is a fascinating reproduction of the Mexican Codices depicting the fall of the Aztec Empire almost in strip cartoon style. In the July 1972 issue, the lead article by Adoum, is "Book, Dear Friend." Among many other attractive articles, there are photographs of the birch bark manuscripts of ancient

Novgorod and the results of Unesco's inquiry into the kinds of books people read. Wegman says, "What do people read? More often than not, they read the books that are readily available, and when the books are not there, they sometimes do not read at all. It is therefore apparent that the kind of books produced is as vital as the mere production of more and more books" (*11, 12*).

Another Unesco publication which is directly related to our interest is the Summer 1972 issue of *Prospects* (*8*), a quarterly review of education. It includes articles on various aspects of reading from the Soviet to Africa, in celebration of IBY in a section called "Elements for a Dossier: Reading Today."

The Tokyo Book Development Centre issues a periodic *Newsletter* (*6*) which includes many items of worldwide interest, even though it stresses the Asian scene. It is quite evident that their IBY committee has been extremely active in promoting books and literacy.

One example that European activity is being carried out by the Youth and School Committee of the Austrian Unesco Commission, Richard Bamberger, chairman. First, a study of the reading situation in Austria was projected; then information about the importance of reading was made available through various media; throughout, special emphasis on reading and books was given in the schools.

The Consultative Assembly of the Council of Europe has formally encouraged its member states to participate in IBY activities, and has asked that other groups fashion their own programs emphasizing the importance of books and reading (*2*).

One should not overlook the groups and organizations who have, for many years, encouraged the use of books and reading. In Venezuela, the Banco del Libro has been working since 1960 toward making books available to many people. This organization has been especially active in creating a nationwide network of school and public libraries for children and young adults. It has also issued a reading primer and published a description of its activities which is of interest to those concerned with book promotion (*7*).

The International Book Year 1972: A Programme of Action (*5*) is the basic document issued by Unesco and is available in Spanish, French, English, and Russian. It includes the original resolution (Res. 4.121) of the Unesco General Conference, as well as many themes and activities which might be engaged in.

In the United States, in addition to a presidential proclamation and a joint senate and house resolution in favor of the celebration of IBY'72, a special secretariat has been established which issued "A Handbook for U.S. Participation" (*4*) and a newsletter and also distributed posters. Many

suggestions for IBY-centered activities and celebrations are included in these publications.

It would be an error, in a discussion of the place of books in the world, to overlook Barker's Unesco volume, *Books for All* (*1*), and its successor by Escarpit, *The Book Revolution* (*3*). The source of the IBY'72 theme can easily be deduced from the title of the Barker handbook. Escarpit's sequel is a storehouse of information about the history of books; the interpretation of production statistics; and the changing problems of publishers, booksellers, and communication in general. His final sentences serve as an introduction to a later book, *The Book Hunger,* by Barker and Escarpit. The writers say, "Dissemination, limitless and ceaselessly renewed communication among all men—that is the true function of the book. Once it ceases to fulfill it, however fine its appearance and however noble its content, it is merely so much waste paper, a soulless treasure. One might as well put a stone in its place" (*3*). A condensation of parts of this book appeared in the January 1972 issue of the Unesco *Courier.*

IRA contributions

Eve Malmquist served as chairman of IRA's committee to celebrate International Book Year. It is particularly difficult to assess the many ways in which this committee and the IRA have contributed to IBY activities. The members of the committee itself represented nine countries: Chairman Malmquist and Gunnar Axberger, Sweden; Lily Ayman, Iran; Richard Bamberger, Austria; Chinna Chacko Oommen, India; Marie Clay, New Zealand; Dina Feitelson, Israel; Ethel King, Canada; Nancy Larrick, Virginia Mathews, Helen Painter, Robert Karlin, and Ralph Staiger, U.S.A.; Claude Philippe, France; and Takahiko Sakamoto, Japan. The committee served as a coordinating and stimulating body, and its members contacted appropriate organizations within their respective nations and in others nearby to stimulate the establishment of various bodies to further the goals of IBY.

An initial contact was with the National Commission for Unesco in their respective countries; but since each nation is unique, other interested groups were involved. The committee suggested activities, raised important issues, and indicated areas of concentration and programs of action which would have impact well beyond 1972. Their contacts included ministries of education and organizations of teachers, librarians, writers, publishers, booksellers, as well as representatives of television, radio, and other printed media.

IBY'72 took an important part of the program at IRA meetings held in various places to highlight the topics of book development and the use

of books. Past IRA President Theodore Harris served on the U.S. Ad hoc Committee for the International Book Year. Francis Keppel, former U.S. Commissioner of Education, spoke on "Reading Development and Progress" at the opening session of an IRA convention. He was introduced by Chairman Theodore Waller of the U.S. Ad hoc Committee.

At IRA Vienna World Congress, which is planned for 1974, an award will be presented by the Association to the individuals and/or groups in a particular country which made a unique effort to the International Book Year goal.

In the United States, where 728 councils are organized, presidents of these local and state groups were encouraged to include IBY'72 in their activities. Each council was encouraged to set up a special IBY committee for which background was provided by means of the IBY fact sheet from the U.S. Secretariat, a copy of the January issue of the Unesco *Courier,* and a display poster. Ten suggestions were offered to start the committee on its work:

1. Collaborate with your library on preparation of a discussion program or talk in connection with a Book Fair. What reading teachers do is always of interest to parents. Avoid being too technical, of course, in a popular presentation.
2. Develop a book access map of your community to point up sources of book sale, rental, or loan. Do not forget bookmobile stops and paperback sales outlets. Overlays of your maps with different colors for each type of book access can be prepared to be used for PTA, service club, and faculty meetings, as well as for council meetings.
3. If "sister city" or "sister state" organizations are already in existence, an exchange of printed materials might prove interesting. Teachers in other countries might be interested in exchanging children's or adult books with you.
4. Ask for time on local radio or TV to discuss what IBY'72 is and who is involved. Perhaps the materials provided your council will prove useful.
5. Promote, as has been done in Japan, reading to young children by their mothers. Your local librarian can be helpful in discussing appropriate books and ways in which both mother and child can get comfortable —and your community will become more reading minded.
6. Sponsor the oral reading or dramatization of international folktales by someone who does it well: in school assemblies or programs, in libraries, on radio, or on TV.
7. Invite someone from another land to speak to a group about books and stories recalled from his mother country.
8. Ask a local author to speak about his work and the relationship between reading and writing to encourage young, budding authors and readers.
9. Encourage the purchase or start a project to buy children's books in languages which are of interest to some of the children in your commu-

nity. One source is *Libro en Español*, an annotated list of children's books in Spanish, New York Office of Children's Services, New York Public Library.

10. Have a class identify a number of translated books which are available in your library and set up a display indicating the original language and other languages in which some of the books are available; i.e., *Bambi* was originally in German, published in Austria.

What is needed

The IRA has indeed been active in IBY activities. Each person can continue to function as an individual emissary for IBY'72 and work with the Unesco Commission in his own country or with other teachers or librarian groups.

It would be appropriate for us to consider the endorsement of the Charter of the Book (see Appendix), both as a gesture of support and as personal encouragement to work on behalf of this important international year with which all of us have close ties.

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Literacy Programs in Latin America

IT IS WELL KNOWN that illiteracy is an old and endemic problem which somehow alternately becomes a cause and an effect of many other difficulties in Latin America. The purpose of this paper is not to probe deeply into the etiology of this phenomenon, but it may be stated that causes have historical, geographic, economic, social-political, and cultural origins, most of which were present in prerepublican times. Their effects are still felt among the Latin American peoples who suffer from a rather high level of illiteracy.

The efforts that countries have made in the past and are still making to increase current educational levels of children have not been generously rewarded. Even though it is true that levels of illiteracy are gradually decreasing, in many a country the number of illiterates is increasing, a condition due to the explosive growth of population.

Present society, as a result of accelerated scientific and technological developments, is experiencing changes to which it must learn to adapt. An illiterate is not only one who does not know the letters of the alphabet but also he is one incapable of extracting data which he needs to survive in the modern world.

Early literacy programs

The first efforts to raise literacy levels in Latin America tended to focus attention (and to a certain degree still do) on rudimentary skill development. That tendency led to the formation of the traditional evening schools for adults where those who had dropped out of or had never attended school could receive some minimal training. These schools, attended by those who were thirsting for knowledge, did fulfill a need even though they were replicas, in appearance and programs, of urban primary schools. As time went on and without losing their initial characteristics, those establishments where the main goal was to learn to read, write, and perform elementary calculations underwent positive changes as shown in certain curriculum adaptations and reduction in the total time required to achieve the goal.

This approach to overcoming the problems of illiteracy, suffering from severe limitations resulting from low budgets and failure to structure programs that were in harmony with the interests and needs of adults, was bound to be ineffective in a continent where there is a scarcity of schools and teachers and where economic destitution prevents children and youth from obtaining an education.

Massive literacy campaigns that involve the entire adult illiterate population have recently been undertaken. It is claimed, however, that, "the fundamental mistake these campaigns make is that they turn what is simply a means and a preliminary step into an educational plan and ultimate goal." Furthermore, it appears that literacy campaigns do not attract the intended beneficiaries because they do not understand their purpose. At times, consequently, adults have been compelled to participate in literacy programs. Many illiterate adults, because of their low standards of living, feel they have no use for reading and books. Their curiosity about the outer world is satisfied by other means, particularly through the widespread use of transistor radios. This is a natural consequence in many communities where social, economic, and cultural deprivations do not require forms of communication other than simple verbal ones to satisfy a person's needs. There are many millions of Latin Americans who endure this subhuman condition. Obviously, it is a complex phenomenon requiring complex solutions of which literacy is only one part.

These literacy campaigns have not succeeded in achieving their objectives because of their massive character. The same treatments do not cure the ills of all people. It is unrealistic to assume that all adults are sufficiently motivated to want to learn to read; instead, learning to read must fulfill a vital need. A peasant who tills his land as his forefathers did will not feel a need to know how to read. If, on the other hand, he becomes convinced that the use of modern techniques will bring him and his family greater benefits, he will use machinery and perhaps fertilizers and selected seed. Advice from the agricultural specialist during his sporadic visits will not be enough; the farmer will then face the need to decipher handbooks and instructions on various containers. If he succeeds in doing that, he will feel the great joy of independence of a full and worthy man. Efforts to awaken a desire to learn to read must precede the establishment of any instructional program.

Competent leaders now recognize the weaknesses of former attempts to eradicate illiteracy. Programs are better organized to serve the requirements of diverse populations, and there is an improvement in methods of teaching and in development of suitable materials.

Current literacy programs

Unesco promotes functional literacy, the objectives of which are linked to economic and social development problems, and the strategy of which operates on the following criteria:

1. The selection of industrial or agricultural development projects which have priority in the national development plans.
2. The selection of problems or activities which demand a functional literacy program with the purpose of reducing specific difficulties which hinder the development program.
3. The selection of individuals who may receive maximum benefits as a result of literacy.

It is already evident that literacy programs alone, though carried out under the best conditions, are not sufficient to enable the designated population to participate in the achievement of the objectives established in the national and regional development plans. The problem requires particular attention in this continent where there is not only an excessive number of illiterates but an even greater number who have left school early and possess little knowledge. Thus, there is need to grant adult education first priority; however, an equally important need is to improve the quality of the regular educational system at all levels. At the present time, several countries are beginning to adopt this position to some degree.

In these countries, there is a tendency to give greater autonomy to the directors of adult education in order to facilitate achievement of its goals. A present strategy for adult education—depending on community characteristics, needs, and resources—is to begin with labor training in order to reach literacy subsequently; literacy will serve as a means of greater improvement. This system will enable the adult to obtain gainful employment and improve himself through additional education and job training. In the final analyses "adult" education is continuing education.

For several years, organizations such as Unesco and the Organization of American States have been assisting countries to promote and encourage education at different levels. The OAS Regional Program for Educational Development has the following objectives:

1. To promote and complement national and multinational efforts in the field of education in accordance with priorities expressed in the Declaration of American Presidents. These priorities involve improvements in the efficiency, quality, and expansion of educational programs.
2. To promote inter-American cooperation in educational matters in

accordance with the Chapter of the Organization of American States, the spirit of the Buenos Aires Protocol, and the mandates related to education contained in the Declaration of American Presidents.

3. To promote the integration of Latin America through education in order to raise the economic and social levels in the region.

Under the auspices of the OAS and the Ministry of Culture and Education, the first technical meeting of directors of national programs for adult education was organized in Buenos Aires in June 1970. The conclusions reached at that meeting were approved in the first meeting of the Inter-American Council for Education, Science, and Culture in September of that same year under the name of Multinational Plan for Adult Education. This plan recommends that adult education provide for the following: 1) compensatory or complementary education at different levels; 2) permanent renewal and updating of knowledge; 3) training for production and consumption; 4) education for leisure and community activities; and 5) the adult's integration into the local, national, and international communities.

The plan also recommends the establishment in all countries of a national organization for adult education which may serve as the agency to coordinate adult education activities and create within each ministry of education a department of adult education to oversee its activities.

There are several projects presently underway which are trying to implement the objectives of the regional program. One is the Experimental Multinational Adult Education Program which operates in the Argentine Republic as the result of an agreement between the Minister of Culture and Education and the OAS. Through this program the National Direction for Adult Education (Dirección Nacional de Educación del Adulto —DINEA) receives technical assistance and equipment to implement its plans and disseminate information about its programs to other countries in the area.

A point of view

If the objectives of the plan are to be successfully met, two changes must occur. One is in the direction of teacher education. Teachers of adults must be trained differently from teachers of children so that the former understand the motivation, attitudes, and educational needs of men and women and know how to implement a suitable curriculum. The other change is in the direction of public opinion. Professionals and laymen must be willing to consider new approaches to adult education and put aside their preconceived ideas about programs and plans. Only when

both conditions are achieved will adult education efforts have a reasonable chance to succeed.

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The Worldwide Right to Read

THE International Reading Association is by far the largest and most influential group in the world dedicated to the improvement of reading—one of the most important tasks in the world today. Although the United States has one of the highest literacy levels in the world, that fact can be interpreted in two ways. Either it means that we in the United States have done a superlative job or it means that worldwide, all the rest have not done as much as they should have. The writer fears the latter interpretation rings most true. Insofar as accomplishments in reading are concerned, we all still have a long, long way to go. To paraphrase Robert Frost, we have promises to keep and miles to go before we sleep.

"How far should that distance be?" many will ask. I think we have to start working in earnest toward the goal of total literacy—worldwide literacy, universal literacy, if you will.

This goal, I will admit, sounds at first unthinkable and unreasonable for us to achieve during our lifetimes. Perhaps because of the social, political, and economic state of the world today, the goal is farfetched. But it is not an impossible one. It is, in fact, much the same goal which the United States set for itself as a nation several years ago.

One would assume a nation as wealthy and prosperous as the United States would have no illiteracy. In spite of the excellent educational system there, the fact is that the United States is plagued with enormous reading problems. There are 18.5 million adult Americans who are considered functionally illiterate. They cannot read well enough to properly fill out the kinds of basic forms and applications that every American must be able to complete in order to function in this era of technology. The United States today is a country where three out of every ten students are reading below their expectation levels and below their capabilities. And in big cities, the problem is worse. Up to half the students are reading below grade level.

Developing the right to read concept

The Right to Read concept was created in 1969, when the U.S. Commissioner of Education announced plans for a nationwide effort to wipe

out illiteracy in the United States. The goal, he said, was to insure that by 1980 no student should leave school without the skills of reading and communication. Right to Read has been rhetorically called "Education's Moonshot." It is indeed a noble goal, and we are proud to have a part in helping to accomplish it. Only when a nation admits and faces its weaknesses can its people build a stronger one.

Shortly thereafter, President Richard Nixon took up the call. He appointed a prestigious sixty-member National Reading Council, which, in turn, established the National Reading Center. Within months, the first Right to Read Office was set up in the U.S. Office of Education. The following year, Commissioner Sidney P. Marland, Jr., decided that to be effective Right to Read needed to expand greatly its program within his office of education. And in July 1971, he asked the writer to come to Washington to head the new program.

If we were going to meet the awesome goal which had been set for us, we needed first to lay some basic philosophical principles about the teaching of reading, and we did. These have become the guiding markers along the road of progress.

The first principle is a strong conviction that most children are educable and can learn whether they are rich or poor, black or brown or white; whether they live in mansions or in the suburbs or in the ghettos of the major cities; whether their mother tongues are English or Spanish.

The second principle is the firm belief that people can change. We believe teachers, other educational personnel, and parents can and will be eager to adopt new ways of doing things if they are convinced that these new ways will help children to read better.

The third principle is that there must be multiple approaches and multiple solutions since there are multiple causes of reading problems. Right to Read has been careful not to fall into the trap of promoting any single approach because we know there is no one magic way to teach reading.

Finally, we believe strongly that we now have enough knowledge about reading on the shelves of our schools of education to solve the reading problems in our country. What we need is to get that research off the shelves and into the hands of those who can use it—the teachers in the classrooms. Therefore, our fourth fundamental belief is that Right to Read should act as a spur for putting that knowledge into practice and to do it in some systematic fashion.

Implementing the right to read

Our first job was to identify the most promising research and some of the most effective reading programs in the nation. Many have visited or

been part of a class in which it seemed that every student was learning to read to the best of his ability. We searched deeply and widely, looking for these kinds of programs, and we found them—lots of them. But then came the hard part. We wanted to find out what made them effective. With that key, we knew we could duplicate these programs elsewhere. We were surprised that, in many cases, even the marvelous teachers who had designed the programs did not know how they had succeeded. Some did not know what components went into their successful programs or how those components interacted to work as well as they did. So we sent in a team of experts—each was really a kind of reading detective—to find out what makes the program work. In some cases, it was impossible. But in others, our teams of sleuths were successful. And those programs are now being duplicated in other schools and in other parts of the nation.

We have, at present, 244 demonstration projects set up all across the country. Whenever we found a program of reading that was truly successful, we examined it according to specific criteria and found out what elements it contained—what techniques, what supplies, and what resources made it successful.

Reading kits

Our next task was to take this information and put it into some usable form so that the school districts which had agreed to cooperate with us could duplicate one or more of the successful reading programs. We developed reading kits, each of which describes a particular program in a multimedia format. Each kit first tries to give those unacquainted with a new program an overview of what that particular project is about. Then the kit becomes more detailed. It will tell, for instance, not only that a program has a language experience approach to reading but how it operates. It also tells how teachers were trained, youngsters were motivated, parents were involved, and how paraprofessionals were utilized. It also gives data about the children who participated in the testing program so that their performance levels and other base-line data are known.

Each kit describes the instructional approaches used in the program. It is very interesting to note that every successful program examined included a variety of approaches to the teaching of reading. But every single approach embraced the practice of diagnosing the needs of the children involved and of prescribing techniques to meet those individual needs. The kit also contains information about the adaptability of the program. It shows whether the approach can work with only one type of population or whether it will work for a variety of children who have differing needs.

The final component of each kit, of course, is evaluation. Information is included about how well the children progressed, not measured by standardized tests only but judged in terms of attitudinal changes, increased interest in reading, and other important aspects of change which can be measured.

We have also developed with each kit an instructional sampler which gives the prospective user samples of the various types of materials and supplies used in the program, be they for students or teachers. A cassette tape, containing an interview with the person responsible for developing the program, is included along with a filmstrip of teachers working with children.

The principal or school administrator of any demonstration school is not required to adopt any one of these various approaches or packaged programs. But reading teachers are asked to examine a variety of these programs to see how they can complement those already in use. Perhaps only one aspect of one program can be used to improve the current program. On the other hand, maybe several whole programs will be tried. One thing is certain: some teachers will find some programs more comfortable to work with than others; and few programs will work unless the individual teachers involved are comfortable using them.

During the past school year, we field tested these programs in selected areas of the country. Now we are revising the kits where necessary and will soon make them available to the country generally.

So this is the first part of our delivery system—providing good and sound information. We provide information about the most effective practices in reading, information about where effective programs are occurring, and information about why certain programs did or did not work very well. And we are doing this work on a national basis. Schools may utilize this information regardless of whether they receive funds from Right to Read. The materials are self-instructive and are designed to bring about improvement through examinations and alterations.

Technical and financial help

The second part of the delivery system consists of technical assistance. For too long, the U.S. Office of Education gave away federal funds without really knowing how they were to be used and without providing people with the expertise necessary to help the recipients spend the money wisely. And so we asked that cooperating school districts accept technical assistance. (We were pleased to learn they did so gladly.) We now have a cadre of people on the Right to Read staff whose job is to go around the country to projects and give needed help in planning, implementation, and staff development. This number will be enlarged soon.

The third way in which we help is by providing financial resources. In the United States today, most public school districts are facing financial crises due to a variety of reasons. Many are having trouble just keeping their present programs intact, and we know that if we want schools to try something new, something different, then we must give them money as well as information and technical assistance.

The usual way a school district obtains federal funds for any educational purpose is to write a lengthy proposal which supposedly explains what the money will be used for. These voluminous proposals usually tell the reader more about the writer's skill than what the program would actually be like, and so it was decided not to require such proposals in the Right to Read program. Instead of asking for written proposals, we ask for a school district and the principals involved to commit themselves to a total plan of action, drawn up by them at their local level.

We have developed needs assessment instruments that relate to reading. And we have developed charts to help a principal look systematically at what is going on at his particular school and then to utilize this information to evaluate the program presently offered. The assessment materials show principals where deficiencies lie and how to make their programs work better. The school district must then sign a written commitment to make these changes—and then actually make them—before Right to Read allows that district to participate as an experimental district.

When the school district has done as much as it can locally, then Right to Read gives it some money. The funds are used to draw up a plan of action showing what it will attempt to do with the requested help. It is at this point that the district makes a written proposal. But it is not written by some person in the superintendent's office who has little contact with the field. It is written by the local school staff that has worked to develop the program and that truly knows what help is needed.

The plan must outline the fundamental objectives of the proposed program with a degree of specificity that will allow us to measure what they plan to do. We see objectives as road maps telling us where we need to go.

We also look to see whether there are definitive reading approaches described in the proposal. We don't particularly care which one or which group of approaches is included because people are more important than approaches and some people work better with some approaches than with others. But we do think people need to know in advance which approaches they plan to use.

We also examine the proposal carefully to see whether the curriculum materials proposed are relevant. We look to see whether parents are intimately involved in the program. We feel they should be utilized, either

on policy-making boards, as teaching aides, in the adult programs, or in the many other ways.

We also look closely at the staff-development component on the job. People will make the difference, not remedial bandaids. And finally, we examine the proposed evaluation techniques, showing how the school plans to find out whether its proposal is succeeding.

At each site, the school principal is asked to set up a unit task force made up of parents, teachers, librarians, and many others who can help in planning the program—not as advisory committees but as working task forces whose responsibilities include the planning, implementation, and monitoring of the program. Technical assistants may help, but these task forces assume the basic responsibility. Merely funding little projects around the United States, however, would never have had the massive impact necessary for a serious attack on eliminating illiteracy. There had to have been a multiplier effect built into these demonstration projects. And one was.

The eventual goal of all demonstration projects is to turn them all into programs which are so good that they can become models for their neighboring school districts. We give each project three years to reach this point. As the neighboring schools develop their programs, they can soon become models for their neighbors, and so forth. This multiplier effect must keep working until every school in every district in every state has developed new and better methods of teaching reading to all of its students.

Adult programs

All literacy problems are not among youngsters in public schools. What about the adults who cannot read?

If we are to truly eliminate illiteracy in the United States, we know that Right to Read must include those other than professional educators in order to reach its goals. We must involve business and industry and get them to lend their strengths and resources to solving the problem.

We have already started working in this area. We are funding more than seventy-five community-based programs. Some of these are job-related instructional programs where working men and women receive reading instruction tailored to their needs on the job. We have other programs that involve sending tutors into the home to work with parents. We also have training programs on how to help the parents help their children with reading. We are helping prisons and correctional institutions and business and industry to establish literacy programs. Also, we are working with the colleges and schools that train teachers. I am appalled that most of the teachers in the United States are given

only a three-unit course in the teaching of reading while it is mandatory that they get six units in physical education and eight in music. Are we asking teachers to do things that we've been unwilling to prepare them to do? Is this one of the basic causes of our reading crisis today?

In addition to increasing the amount of reading training given prospective teachers, we ask these teacher-training institutions to become more involved in daily staff development. Schools and colleges of education ought to go where the action is—to the local schools—and get involved in on-the-job training and retraining programs for teachers.

Concluding statement

And so you can see that we have been busy. We are for the first time helping local districts to see that some of their reading methods and techniques work while others do not. More important, we are helping districts to find out why some methods work so the "magic" involved can be translated into an easily understood systematic approach which other teachers, schools, and districts can utilize. We have built in a multiplier effect.

Another feature of Right to Read is the office-wide coordination within the office of education. All programs involving reading and its related aspects focus their resources upon the goal of total literacy, thereby creating a major federal thrust. This concept is also followed by the fifty states which coordinate all related programs on reading improvement.

We have started attacking the problem of adult illiteracy and have made our first important moves to involve the private sector and business and industry. Even now we are working on a system of helping coordinate the nearly one billion dollars spent each year in federal aid from other programs which involve reading to make sure each dollar is spent wisely.

The United States finally realized, officially, that it must pay for problems one way or another, and it decided that eliminating illiteracy would be far cheaper than continuing to support the bitter harvest of social ills that illiteracy has reaped. The United States, as a national policy, has decided that fighting illiteracy is a good investment. It has bet its money on its children, and I think it is going to win.

What I have said about illiteracy and its effects in my country applies to many other countries. We, as the citizens of this world, have known for years that we have a worldwide literacy problem. But we have yet to officially declare it and I think it is time we did. We should urge the United Nations and others to make an all-out attack on the problem through its worldwide Unesco resources and set some time-limit goal for bringing all of this about. Hopefully, we might live to see the day when all of the citizens of the world have the Right to Read.

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Libraries and Reading Development

AN EXAMINATION of the ways in which libraries can have an impact on reading will reveal data that might be useful for studying related educational and cultural problems. An underlying premise which supports this idea is that books continue to be the instrument of education and culture, and their promotion is not possible without a literate people.

The problem of illiteracy

A Unesco publication reports that in several parts of the world many children drop out of primary school after a few years and become integrated into large illiterate communities. If these children do not have anything to read, most of them will forget what they have learned (*19*). But as we shall see, there are millions who have not even had the opportunity to enter into the diffuse categories of "beginning" or "illiterate because of disuse"; that is, there are those who never have gone beyond the threshold of school. The Argentine Republic has an honorable educational tradition, a tradition that cannot ignore the critical situation felt by schools for many long years; furthermore, the country emphasizes the stagnation and even retrogression experienced by its formerly progressive educational system. The indicators of this paralysis may be inferred from some official statistics which have been recently supplied and which unfortunately place Argentina within the barren domain of countries that are not feeling the benefits of progress. In fact, it is hard to believe that out of every 10 pupils only 5 complete the primary school cycle, and that out of the almost 14 million registered in the voter poll for the 1973 national elections, the number of illiterates approaches two million. These figures are true demonstrations of the obvious inadequacies and limitations of elementary education which hinder the development of universal education. This paper does not purport to examine conditions that affect education and impair its institutions. But it must be pointed out that the flaws in the system are responsible for the calamitous state in which a vast sector of the school population finds itself.

The 1971–1975 Development Plan which calls "for the democratiza-

tion of teaching" and seeks "to ensure the principle of equality of opportunities," recognizes the need to favor the lower income groups by providing services such as meals in school, medical attention, and medicines, thereby recognizing the close relationship between the health of the pupil and the satisfaction of his needs. The Consejo Nacional de Educación (National Education Board) found that in the schools under its jurisdiction—serving more than one million students—malnutrition is a serious problem and that in the so-called shanty towns in Buenos Aires, 60 percent of 1,500 children suffer from it. The establishment of school dining rooms supervised by competent dietitians, together with proper medical attention, would relieve the student of burdens which interfere with learning. However, these services must be offered without charge, as provided by Common Education Law 1420.

The aforementioned conditions are not unique to Argentina. In Africa, Asia, and Latin America, in no less than a hundred countries which are regarded as technically underdeveloped, the conditions which destroy the morale of the people are becoming more serious. Hoffman, in his book *Cien países—Mil Millones y Cuarto de Habitantes* (*One Hundred Countries—One Thousand Million and a Quarter Inhabitants*) says that "... the knowledge that could help him solve his problems are beyond his reach, since he cannot read. This man, the same as 50 percent of his fellow citizens, is illiterate . . . and his children do not attend school . . ." (*8*). And Hoffman adds that there are 200 million school-age children who do not attend school yet because there are neither classrooms nor teachers within their reaches. How right Castro is when he says that . . . "underdevelopment is a form of undereducation," and that "in order to eradicate it, it is necessary to offer good education and form to man's soul, which has been deformed everywhere!" (*5*).

Thus, "bread and alphabet" should be the watchword so that the book may not become a privilege for the exclusive use and abuse of the economically powerful. Millions of men share this irrevocable belief; they have a burning desire to carry out in the words of Maheu "the world revolution in education" (*10*). Schools and libraries must join forces to bring about this sometimes painful and slow action.

Literacy and the elementary school

Elementary school is the epicenter of the development of the reader or "education for the book." Washburne says that ". . . reading is the most important subject in elementary school. It is evident that without the ability to read it is impossible to enter other fields except art and those involving physical activities. Reading is, therefore, the common

working instrument for all other subjects; it is the cornerstone of the building in school life . . ." (*20*). The creator of the Winnekta System adds that to ". . . teach children to read well and attain pleasure in reading is the most fundamental aspect of the teacher's mission. . . ."

Without going into the dispute over methods in the teaching of beginning reading about which Braslavsky (*2*) has carried out extensive studies —that is, without taking sides for any of the synthetic or analytic methods adopted by the first grade teacher—it is obvious that this child's success or failure depends upon his attitudes toward books and reading. It may be said that for the child everything represented by the school is embodied in one symbol, the book—*his* book. His love for the book will depend upon his knowledge and ownership of that book since nothing can be loved if it is not known.

"The primary objective of school," Mercante states, "is to establish the attitude to read and select the readings . . ." (*12*). But attitude does not suffice. A child's development depends upon other affective ingredients and other social demands which transcend attitudinal requirements.

Therefore, the teacher must be concerned with more than how to teach reading and with what materials he might best achieve the goal. The teacher must also endeavor to make the book fulfill a permanent need. It is this need that will be the measure of the pupil's spiritual growth as it is expressed in gradually increasing interest for reading. The book will take on social significance since through the book the beginning reader will enter the dialogue with the surrounding universe.

Teachers create a warm feeling toward books as they arouse interest in reading them. This homeostasis, precursor of specific motivations and habits, serves as a magic carpet which entices the child to travel about seeking wonders and surprises. What can be said of the teacher who has the difficult mission of finding ways to teach his pupils how to read and at the same time transform the words inscribed on those pages into live, deep, and clear images? The teacher is the crucial factor. His sensitivity in using the book as a tool for teaching children to read creatively; the subtlety with which he makes them want to know and read, both in school and at home; his capacity to refine procedures so that reading does not become a burden—all these qualities are requisites for successful teaching.

The fate of the reader will depend on the type of teacher he has throughout his school years. And here is the paradox: "Teachers, professors, and high authorities take part in the conspiracy against the book," Mercante points out (*12*). This conspiracy may be active or passive although at times passivity is a refined form of negative activity. In protesting against poor school practices, Gasset denounces teachers' daily

practices of a gloomy "hunt" where the child is the prey as "a cruel methodology to assail childhood and produce men of diseased puerility . . ." (*13*). The aim of all this activity is to replace each child's "own world" with the prosaic world of adults or, according to Sosa, ". . . to wish to kill his love for the realities built by his sensitiveness" (*17*).

In many cases the lack of timely and adequate incentives is one of the forms of "conspiracy" Mercante talks about. If the enthusiasm that should be aroused by reading is weakened or does not appear and if, in addition, the book is put aside and its place is taken by other didactic materials with a modern appearance, the child is frustrated just as the marvelous adventure of the book has begun.

Our schools should not retain teachers who are cold and mechanical pedagogues, "teaching machines" that are alien to the emotional rhythm of pupils and for whom reading is only gymnastics of the mind or the old "sizing" of formal discipline sustained by traditional psychology. Such teaching types are some of the main characters in schools where dusty books are stacked and the library—if there is one—is tightly closed.

School libraries

The school library is part of the general structure of essential services in every educational institution which takes pride in its endeavors. It is the natural environment of the new reader as the public library will become after the student has left the classroom. Conditions there should be so conducive to reading as to cause him to turn to the library not merely to obtain information but to seek pleasure from reading. In addition to being regarded as a study-supporting organization, this library acquires a unique importance if it is utilized to promote language development, reading improvement, and appreciation of literature.

The classroom library is considered an extension of the central school library; hence, its functions correspond to those of the central library. A library must meet minimal requirements in staffing, operation, and resources if it is to provide continuous service. However, Luzuriaga, disputing the belief that the installation and maintenance of a school library require a great many resources, states that scarcely two dozen well-chosen books are enough for a library to start operation (*9*). He would disregard any type of limitation and suggests that one should expect ideal conditions and that teachers can assume the responsibilities of librarians where they do not exist. Such recommendations might appear to be utopian since there are thousands of schools in suburban and rural zones which haven't the slightest chance to secure the twenty-four books

required to start. In urban centers a high percentage of schools have insignificant libraries or none at all.

The present state of library services (really nonservices) reflect the meagerness of education budgets. Weaknesses in teaching reading are also products of limited budgets. The consequences of these situations increase the number of nonreading youths and adults who make up the legion of "technical illiterates."

Under proper conditions, the school library will facilitate the reader's identification of the type of books he prefers. An adequate selection of books is a key to the development and maintenance of the reading habit. Specialists place these books into three categories: 1) Those which awaken the pleasure in reading (picture books, albums, graphic stories, illustrated booklets); 2) those that are useful for learning to read; and 3) those which are read for enjoyment and appreciation. Children's magazines, a collection of pictures from newspapers and other sources, and classified news clippings complement the book collection.

I agree with Escarpit's belief that it is extremely important for the book to enter the child's life before he reaches school age and that from that time on the book becomes a part of his daily activities since "to be familiar with books before reading them is an assurance of strength for future acquisitions" (*6*). This precept, which harmonizes with the practice of storytime established in some libraries, shows the way to those who hope to win over future "consumers" to the cause of the book. Escarpit urges also that we begin, as early as possible, to make the child sensitive to the dialogue he can have with the book, first through the data provided by illustrations and later through the images the words create.

Early exposures to books open ways to understanding and make possible initial reading successes. But the fact that the child feels the book is his is as important, perhaps, as preparatory exercises so well known by kindergartners. Makarenko adds another ingredient: "It is advisable that books be easy to understand, printed in large type and with many illustrations. Although the child may not be able to read them yet, they are useful since they awaken his interest for reading and the desire to overcome his difficulties . . ." (*11*). The school and public library must provide books intended for the prereader. The presence of books on the shelves is one way of "winning" readers, of sowing for the future.

Influences on reading

We are aware of the difficulties and obstacles which must be overcome to develop a sagacious, capable, and thoughtful reader. Added to them is the misplaced emphasis upon grammar in teaching reading, a practice

which seems to be a contributing cause of poor reading and unwholesome attitudes toward reading. Poor teaching accounts for many of our reading failures. A recent survey of first-year students who attend a commercial high school in Buenos Aires shows that more than 50 percent of them could not satisfactorily read materials intended for use in grades five to seven of the elementary school.

Obviously, the library serves no great purpose if the school does not train its potential customers adequately. It is also useless if the books it contains are beyond the levels of experience and capacity of the children who will use it. But most of all, it will lack any value if readers are indifferent to its offerings. This indifference, which may even be expressed as open hostility toward the book, is the product of poor instruction in elementary and secondary schools. Benedí (*18*) believes that bad teaching leads to horror for the book and aversion to this precious and essential means of transmitting culture; bad teaching leaves hate and aversion which will last throughout life because the mere presence of the book reminds youths and adults of the hardships and rigors they suffered on its account and which embittered the happiest days of their childhood. Schools must evaluate their practices and work to improve teacher performance.

Another influence on the reading habit is the proliferation of comic books, romantic novelettes called "shoddy" by Jesualdo, and mindless magazines, none of which require reading in depth. Although the popularity of these materials has not prevented the publication of new editions of Tolstoi, Pirandello, Thomas Mann, Marcel Proust, and James Joyce, typical readers shun the latter ones because they are "difficult authors" (*4*). Instead, readers turn in large numbers to "easy" reading, are fair game for advertisers (*15*), and avoid libraries (*14*).

Genovesi explains that it is not a question that the comic strip lacks flaws. "It is truly depressing to confirm that certain persons have no other reading material than Superman, etc. And it is all the more depressing insofar as we can realize that school has done little or nothing for them . . ." (*7*). Bullaude (*3*) echoes this theme when he decries the fare offered audiences by TV, radio, and other media.

Television is an instrument for transmitting culture, but its programs have done little to upgrade the tastes of its viewers. Just as the popular books and magazines fail to enrich the spiritual life of their readers, so do TV programs focus on the inane and sensational. And TV has become the popular medium of communication which has had the effect of reducing interest in libraries, even among teachers (*1*). The number of readers who use libraries has declined sharply as have budgets to support them. Fortunately, there is still some continuing support for libraries, such as the

ones in Rosario and Villa María, which are educational and cultural centers.

The public library complements the efforts of the school library; in fact, the public library and school are of equal importance. Sarmiento (*16*) made this observation almost one hundred years ago. To be effective, libraries must be where the readers are, so the library shall have wheels and bring the best of books to every corner of the country.

Reading is the key to knowledge. Libraries help make reading possible, so let us use our resources to expand and improve them. Surely there is no cause more necessary than this one.

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INFLUENCES ON READING

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Psychological and Cultural Factors in Learning to Read

IN THE SPACE allotted, only a superficial overview of the psychological and cultural factors which effect learning to read can be presented here. I can but summarize some of the implications of the research arising from a multidisciplinary approach to reading instruction. For a fuller review of this area, see an earlier comprehensive survey (*14*).

Psychological factors

Social Psychology. Studies in this field emphasize social interaction in the classroom, social climate, group dynamics, social organization of pupil groups, and the interaction in the teacher-pupil group. It is pointed out that effective teaching is not dependent upon some single major characteristic of the teacher. Learning to read involves constant interaction between teacher behavior and pupil behavior and between group behavior and teacher behavior. Outcomes as measured by achievement depend more upon the patterns of behavior than upon the actual methods or materials of instruction (*17*).

There are immediate implications in this social interaction research for the field of reading. Our studies of grouping for teaching students and of grouping arrangements within the class are often fruitless and artificial. Arbitrary groups lack the normal characteristics of esprit, cohesiveness, leadership, and group-defined goals. We are comparing the effects of collecting pupils in various ways rather than the behavior of normal groups of human beings (*8*).

Similarly, our reading research into the effectiveness of various instructional methods in classroom or remedial situations is often pointless. Such comparative research tends to ignore the fact that the dynamic practices of the teacher and the kinds of teacher-pupil interactions she promotes are the most important determinants of pupils achievements. The collected results of the large scale First Grade Reading Studies, as they are called in the United States, strongly reaffirm this fact. Hardly

any real differences in pupil achievement were found in comparisons among a half-dozen different approaches to beginning reading, in carefully equated populations (*3*). Rather, in almost every study, achievement varied more from one teacher's classroom to the next than it varied according to the methods or materials employed.

To be conclusive, future research in reading will have to consider or compare such factors as the social climate of the classroom, the verbal and nonverbal behavior of the teacher, the tone of pupil-teacher-group interaction, and the success of the teacher in making learning a goal-oriented, problem-solving series of situations.

Another area of interest to social psychologists is the effect of mass media upon attitudes of the learner. We know, for example, that during the first ten years of its use, television tended to monopolize the time of our school children. Many spent more hours per week in front of the TV set than they spent in school. These hypnotized viewers showed little judgment or selection in the programs they watched. As we might expect, recreational activities of all kinds were diminished, and recreational reading suffered greatly. Today, most of the ill effects have disappeared, and we find children spending fewer hours watching TV, being more selective about programs, and returning for about a normal amount of personal reading. We have realized that television viewing does have some salutary effects, such as increasing the vocabulary of preschoolers who are heavy viewers; and the medium might even be used for educational purposes. As a result, we now have several programs that attempt to convey reading skills to young children, programs such as *Sesame Street* and *The Electric Company*. We would question the illusion of the producers that reading is promoted by learning the letters of the alphabet, but there is also offered a great deal of other informational matter of significant value.

Large-scale instruction by TV exists in many parts of the world and offers factual courses, foreign languages, and literacy training, as well as cultural courses in the arts. The research indicates that the medium can be profitably employed, particularly if combined with classroom or tutorial instruction. Perhaps some day we will begin our educational efforts with regular programs for preschool children (and for their parents in child rearing), continue our use throughout the school years to enrich and enliven instruction, and extend it broadly into the post-school years. It is apparent that if the problem of bringing electricity to rural areas could be solved, the worldwide curse of illiteracy could be attacked with dramatic success.

Educational Psychology. We are witnessing several conflicting developments in early childhood education in the proper methods of stimulating intellectual development among young children. One group insists

that training in reading and other subjects should be begun in the nursery school. This group claims that school success will be heightened and thinking ability accelerated. The fact that certain studies show that some children learn to read before entering school, with consequent acceleration in reading skills, is used as an argument that, in particular, minority children would succeed better in school if given early formal training. This group ignores the observation that among the children who read early, those given formal training were not so successful ultimately as those who learned spontaneously. Among others, Piaget's observations of children and a number of confirming experiments, do not indicate that school tasks stimulate early cognitive development (*7*).

The contradictory trend in nursery school practices has been toward deemphasizing teacher-directed routines for naps, toilet, and play. The proper goal is seen as development of the individual child's social skills, emotional development, and language development in a relatively unscheduled, self-directing program. This approach does not deny that some learning is sequential nor that its development cannot be stimulated by planned experiences. It is recognized that programs intended to improve language development do result in significant gains in vocabulary and information, greater readiness for school entrance, and increases in verbal IQ (*5*). But it is asserted that these developments are the result of a warm, accepting social climate with ample verbal and affectionate relationships, not a highly structured climate (*9, 16*).

Educational psychologists are conducting studies in a number of areas of human behavior that are relevant to reading instruction. For example, the exploration of cognitive development and cognitive styles of thinking relate to our plans for the development of comprehension. When we gain further insights into the stages of development in thinking, we may be in a more defensible position in our scheduling of comprehension skills. As we learn more about the ways different pupils react to problem-solving situations, as by analytic versus synthetic logic, field dependent versus field independent, or objective versus subjective modes, we may learn how to help children who exhibit these differences to become better readers (*18*).

One group of psychologists is helping us to understand reading as an information processing system (*12, 13*). Reading is described as visual scanning—identifying words by searching mentally the store of high and low frequency words or, if this fails, by inspection of letter groups, word groups, or other distinctive features of the text. This recognition of information is then combined with the past experiences in long term memory storage to give meaning to the text. Long term memory operates by clustering, chunking, or organizing many facets of words and ideas as

meanings, salient physical features, and associated terms which are then combined in the reading act with the contextual information in the printed words.

In information-processing theory, the reader must soon learn to utilize the redundancies in the language of letters, patterns of letters, sequences of words, and arrangements of words which impose semantic and syntactic constraints. In other words, he must learn the effect of word placement or function in relation to the adjoining words upon the kind of word he is attempting to read and upon its meaning. Until he acquires a store of visual patterns of high and low frequency words, he is highly dependent upon either sheer visual information or the graphic clues of the letters to their sounds.

The implications of this concept of the reading act are ideas such as to 1. cease drill practice by rote memory, flash cards, machines, and other presentations isolated from context and meaning; 2. try to match the child's language and the language of the book, perhaps as in the language experience approach to thus strengthen his use of context because of the familiarity of the sentence patterns; 3. provide practice in reading varying sentence patterns or different ways of saying something; 4. present items to be learned (words, signs, forms) in concrete, meaningful associations of pairs—*people* ride *cars, cows* eat *hay* and to encourage development of retrieval schemes by arranging words in terms of hierarchies—part-whole, synonyms, antonyms, colors, action, size of objects, with practice in shifting from one category to another to build multiple associations around each word, as well as to provide advance organizers by a preexercise question to give a set for finding a common characteristic among a group of given words (*11*).

Using some of these same ideas, another group of psychologists defines reading at the word recognition level as an example of associational learning, similar to that present in paired-associates experiments (*12*). Even at this level, it is pointed out, the reading act is a multistaged process. Among its components are attention and visual discrimination.

Attention. The child must learn where to focus his attention—on letters, words, their meaning, or the sounds of the letters. He must learn to watch what distinctive feature agrees with his store of memories—hence the need for training in multiple clues to word recognition, for the reduction of distractions, and for the elimination of ineffectual clues such as spelling words in order to recognize and pronounce them.

Visual Discrimination. The relationship between geometric-form discrimination and reading is questionable to these psychologists. Rather distinctive feature training is superior when words and letters are used, when memory or generalizations are elicited, and when confusing items like *b* and *d* are

presented separately and successively. Unlike letters or words, simultaneous presentations are efficient. For letters with alternative sounds, as *c* in *city* and *cow*, concurrent teaching is recommended rather than, as at present, at widely separated times. Training first in recognition by touch and later by vision, with both prior to the introduction of letter names, is also suggested when relevant to the child's aptitude for these learning modalities.

The associational learning specialists distinguish three types of basic memory: the visual image, which lasts less than a second; short term memory, which lasts about 15 seconds; and long term memory, which persists indefinitely. The visual image passes to short term memory in a verbal form, an auditory image, and then is stored in long term memory through some mediating generalization.

These specialists are telling us again that learning the distinctive features of letters and words is not a rote memory process presumably strengthened by sheer repetition. Letters and words, in other words, are not learned per se but by their similarities and differences, their feel plus their visual images, and the organized meanings that children are led to recognize. Rather than sheer practice with lists or groups of words, specialists recommend practicing verbalizations about the similarities and differences, verbalizing the writing strokes, and drawing analogies between shapes of letters or words and common objects (*4*).

Some of the associational learning experts are doubtful of the values of training in auditory discrimination for all children. We have recently been shown that the tests are of widely varying and relatively low validity, often to questionable reliability particularly with dialect speakers, and may measure intelligence and the ability to follow directions as much as anything else. More and more evidence suggests that poor auditory discrimination is not a cause of poor reading among dialect speakers (*6, 15*).

Perhaps the only justifications for this training is as preliminary work to instructions in phonics. It appears that phonics and auditory discrimination training should be offered quite selectively, rather than to most children, since this is only one of the many clues to word recognition, and it is not functional for some children. Furthermore, since the initial consonant or blend is the strongest of the phonic clues to word recognition, perhaps only this portion of phonics skill should be taught to children handicapped by lack of auditory discrimination or dialect or bilingual background, and then only when it can be demonstrated that they can learn and use such a distinctive feature clue (*10*).

As said previously, the space allotted to our subject has permitted only an overview of some of the contributions of psychology and sociology to reading instruction. I have had to omit such developing areas as operant

conditioning, programed instruction, behavior modification, and multimedia approaches.

Cultural and socioeconomic forces

At the moment, spurted by federal, state, and local money, American school systems are engaged in a tremendous effort to understand and ameliorate the handicaps imposed by cultural, language, and socioeconomic deprivations. For the first time in history, the American school is realizing that all its curricula, management procedures, and rewards are oriented toward a middle-class white culture. Some of us are not certain that the problems of poverty, racial discrimination, cyclic unemployment, and the rest can be solved by changes in our schools while the rest of society and its institutions continue to operate as in the past (*1*, *2*).

But, undoubtedly, there is much that the school can do to improve its effectiveness with minority groups. Among the efforts we can be proud of are early programs to stimulate language development, as in Head Start and Follow Through, and training for parents to increase their verbal interaction with their children. Extending the school services downward with special but informal facilities for preschool children will help insure greater success in the crucial beginning school years. Sensitivity training of the middle class teachers to help them understand and relate to minority pupils is now widespread. Recognition that the thinking capacities of children can be stimulated by planned experiences and verbal interaction is gradually effecting teachers' daily questioning procedures. New instructional materials without a white middle class bias and curricula emphasizing the cultural heritage and contributions of minority groups are appearing. The attitudes of minority parents toward the school are being modified by involving them in the classroom as aides, including them in decision-making sessions, promoting the school as a center of community life, and offering a wide variety of educational services keyed to the needs of the parents. In Florida, the educational authorities are finally facing up to the fact that a college preparatory program is not suitable for many or even most pupils, and plans are being made to increase the offerings in vocational education.

This revolution within the school has been a traumatic experience, for many of the changes have appeared only as a result of violent struggle. School personnel, in general, have not really recognized the needs for change, for they were inculcated with middle class values by a middle class school system. Although teachers themselves often rose from a lower middle class setting, they have been mobile upward, constantly striving for the rewards and privileges of the middle class. All their value judg-

ments—as work equals success, education gives status, puritanical morality is best, cleanliness is next to Godliness, save for the future—were reinforced in the school, and it is puzzling and frustrating to deal with pupils who don't subscribe to these values.

We will need perhaps a generation or two of study of such aspects of learning as the classroom climate—the comparative influence of authoritarian, highly teacher-directed learning versus self-directed, self-pacing; the dynamics of groups assembled for learning versus pupil teams or self-chosen interest groups; the analysis of the impact of the teacher's verbal behavior and nonverbal behavior; the ways to help children develop a positive self-concept; and the analysis of the interactions in a group of learners that contribute to successful learning. We have been sidetracked in our progress toward the goal of creating a school that really helps all kinds of children by our overconcern with comparing methods of reading instruction and analyzing new meterials and media for instruction. This research has been relatively fruitless, as we have said before. All we learned was that differences in teacher-pupil relationships make for variations in pupil achievement while methods and materials don't really matter very much. Perhaps some of the kinds of efforts we spoke of—relating to parents, better training of teachers in intercultural concepts, and using materials with which a minority or a poor child can identify, plus the multifaceted study of teacher-pupil relationships—may help us to move in the right direction in the next decade with the aid of the social psychologists.

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Motivational and Attitudinal Influences on Reading Development

WHEN TEACHING READING, teachers encourage their pupils to achieve both a comfortable and relaxed position and a proper state of mind, which is nourished by the plots and the illustrations of the good textbooks as well as by the teacher's comments.

When we adults read, we try to become comfortable and to achieve an acceptable degree of attention and interest, conditions without which reading is not profitable.

This paper examines the role of emotional and physical conditions—including the skeleton-muscle structure—in the development of reading as well as in the reading activity itself once the necessary habits to carry it out have been achieved. The emotional condition is considered from the point of view of a favorable predisposition called motivation, as well as from the adequate basis for normal behavior.

The survey of the intervening factors is centered on the neurological or neurophysiological criterium and applied to the learning processes and the consolidation of the acquired habits. Such an approach, presently called neuropsychological, has a fundamental importance for the development of suitable pedagogical standards and the understanding and correction of learning difficulties.

It must be pointed out that the limitations imposed by a paper of this character make it necessary to present these subjects briefly, but it is desirable that the true complexity of the matter not be overlooked. The existence of different levels—pedagogical, psychological, physiological—is examined; considered on the basis of a historical-evolutionary criterium (*14*), each level has its rules. Therefore, since the consideration of the subject will be mainly neurophysiological, the principles at this level govern learning-physiological processes and are involved in the psychological processes of the higher level, which, in turn, have their own laws. The same thing may be said of the pedagogical level which comprises the psychological and physiological ones. On the other hand, the importance of the physiological processes is neatly revealed when certain alterations

in reading are analyzed; the principal cause of these alterations must be sought in distortions of the learning process due to neurological or emotional causes, but which modify the physiological processes sustaining learning. Thus, in all cases an adequate knowledge of cerebral physiology facilitates better comprehension of the psychological processes involved in learning, or the maintenance of habits already achieved, or a pedagogical programing which may be closer to the goals.

The role of motivation

Psychologists and physiologists have been working since the beginning of the century on the analysis of motivation which may be defined as an "awakening and selective orientation of behavior"(*16*). This definition means that motivation is not only a question of the incitement of certain behavior but also a matter of its direction toward certain goals.

In such motivation, adaptive requirements of the body intervene; they may be innate (nonconditioned, instinctive) or the result of previous learning—part of already consolidated habits. An impulse towards—an incitement—also intervenes which may be analyzed with reference to certain neural devices. That is, the impulse towards is a component of behavior as well as an underlying neurological phenomenon, inherent to structures of the central nervous system. And the goal toward which the behavior is oriented also takes part; generally speaking, the goal may be positive or negative—that is, it may generate positive or negative behavior. The goal has been identified with reinforcement by some specialists; as is probably known, reinforcement is the contribution of the nonconditioned stimulus directed to restore the efficiency of a conditioned reflex. It is evident that in the case of elaborate behaviors, the term reinforcement does not seem satisfactory, at least until learning and the habits in motivation itself are clearly defined.

Classical research by Olds (*15*) shows that certain points of the hypothalamus are leading neural structures intervening in the *impulse towards*. The electrodes placed on some of those points cause a continuous self-stimulation in the animal while those other points cause escape responses. It is more important, however, to establish how, starting from the most basic physiological nonconditioned needs and linked to the survival of the species, consecutive learning processes gradually determine displacements of the behavior toward more elaborated goals. Bearing this concept in mind, Azcoaga (*1*) proposes the assimilation of motivation of the optimum excitability state which Pavlov considers necessary to achieve conditioning (*3*).

Thus, when the learning process has culminated in an adaptive organization of behavior and has become stabilized, it operates as a habit and,

in turn, serves as a basis for new learning processes which will culminate in the development of new habits.

In this way it is possible to understand that certain pedagogic incitements act as *positive* motivations in the learning of reading while other incitements act as *negative* motivations. The utilization of sensoperceptive and environmental resources and, more importantly, the concurring action of the teacher's language in the process of learning operate as positive factors for motivation. But it is also necessary to recognize the need to repress motivations that may hinder the process of children's learning to read. Hence, at the same time that positive motivations are developed, all those motivations which are capable of producing interference or diverting attention must be inhibited.

Motivation in adults' reading operates in the same way, even when all previous influences are at the sociocultural level, the level of the cultural interests of each person. In both cases it is necessary once more to distinguish the levels that control motivation as a physiological and psychological process from those that are generally dominant and influence behavior (*9*).

In addition to the direction of behavior, to be in tune with the environment demands a definite emotional level both in a superior animal and, particularly, in man. As in the case of posture, which is considered later, the role of this emotional level becomes evident when the harmonious operation of the central nervous system is disturbed—and, hence the operation of the body—by its environment. Since the time when Goltz (*7*) carried out the surgical removal of the cerebral cortex in a dog, it has been known that the regulation of emotions depends on regions situated below that structure. Goltz's efforts precede a long series of surveys which show the possibility of releasing emotional mechanisms by surgical removal of the brain cortex and other structures.

Recent research by Burés, Buresova, and others (*3, 4*) who used the technique of irradiated depression, which consists of the functional elimination of one sector of the brain cortex by physical means, has confirmed the nature of the influence of the brain cortex on lower structures. In short, the anatomical or functional elimination of the brain cortex on subcortical structures releases them, in the sense that an inhibition currently exerted by the cortex on the rest of the central nervous system disappears.

Subsequent research studies using the technique of stimulation by permanently placed electrodes (*6, 8*) reveal that the most important among those subcortical structures is the hypothalamus (as in Olds' experiments). On account of this important role in emotional regulation, the hypothalamus is considered an integrating device (*9*).

Since there is an impressive amount of research on the hypothalamus,

our interest lies in emphasizing the following points: 1) the hypothalamus receives a set of neural and hormonal influences from the limbic system (*10*); 2) these emotional devices ruled by the hypothalamus have the characteristic of being innate, instinctive, nonconditioned, and, therefore, responsive to adaptive processes peculiar to the species and not to the individual; and 3) in order that the produced changes in motivation may become elements of the individual's behavior, the integrity and adaptability of the central nervous system are necessary. Thus, the harmonic activity of the central nervous system which makes possible an accurate adaptive balance is achieved by an emotional "tonus" exerted from the subcortical regions onto the cortical ones.

The notion that subcortical zones make up a sort of energy source for the brain cortex is stated by Pavlov (*13*), but it acquired full meaning after the work on the activating role of the brain cortex fulfilled by the reticular substance of the brain trunk and the unspecific nuclei of the thalamus (*11*). In this field it may be admitted that, partially at least, a normal cortical tonus requires an optimum emotional level. On the other hand, an excessive emotional state is incompatible with sustained maintenance of attention and with adaptive activity.

We have thus seen that in addition to an emotional condition favorable to learning, such as motivation, it is necessary to enjoy a level state, a true emotional tonus which can sustain the normal brain work.

The role of attitude

Research initiated in 1910 by Krasnogorski (*13*) shows the importance of the kinesthetic-motor analyzer of the brain cortex. Gellhorn (*5*) shows how all states of the skeletal musculature are controlled by the brain cortex by means of the proprioceptive sensibility arriving from muscles, articulations, and tendons. Similar experiments to those already mentioned show how subcortical zones are the nervous structures which maintain the basic postural tonus corresponding to the species. There is, then, a basic attitude which in the human being is that of extension of the trunk and limbs (or else with flexed arms). Research by Magoun and Thines (*12*) shows that this basic postural tonus depends on the reticulate substance of the cerebral trunk.

The most comfortable position, however, is not the basic expression observed in the decorticated animal. It is the product of motor habits sufficiently consolidated; that is, once more it is the result of successive learning processes which have gradually consolidated postural habits.

It is in the course of individual development that different learning processes gradually lead to the development of motor habits, which in

turn will serve as bases for new learning processes that may be exclusively motor or, as in the case of reading, become its necessary base. Certain attitudes may become devisive factors when they respond to nonconsolidated motor habits that lead to proprioceptive differences, thereby creating excitation foci. Although not necessarily incorporated in the field of conscience, they disturb the reading-learning process or the reading activity.

Finally, the emotional tonus as well as motivation and position, although responding to innate devices, are regulated by learning processes which, through the consolidation of habits, allow the development of new learning processes. Included among them are the pedagogical and, particularly, the reading process.

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Sociocultural Factors and Reading

A BETTER UNDERSTANDING of the factors that affect human development is emerging as a result of the strong impulse ecology is receiving; namely, the study of the interaction of man with the total environment. Fundamental changes in this development are possible since it takes place in an open system and not in a closed, static, predetermined one.

When man makes use of his genetic heritage, he is in a constant and creative interaction with the forces in his environment from the moment he is born. This dynamic exchange determines what each individual becomes physically, emotionally, and mentally. There are few beings that do not reflect both influences, genetic and environmental, and these people are those whom we tend to call severely mentally retarded or severely physically handicapped. But even their lives are affected by environmental influences. If what we know about human development were to be incorporated into all systems affecting the quality of life, the incidence of individuals who do not respond to our present educational methods and approaches would significantly decrease and the quality of their lives would be enriched.

Intellectual development and the environment

The fact that in isolated rural areas and in poverty belts surrounding the cities, there is a high incidence of mental (functional) retardation is not mere coincidence; people who live in such areas suffer from malnutrition, illness, inadequate sanitary facilities, lack of decent housing, limited educational opportunities, and all the other products of lethargy and apathy which go hand-in-hand with poverty. These common and interrelated conditions help to determine the quality of each person's life, particularly of the life of one who has limited capacity for learning, whose achievement is below his potential, and who finds it difficult to respond to methods and materials with which others have no difficulty. His well-being depends upon others who are in a position to ameliorate conditions

adversely affecting him, but the others, too, are products of environmental influences with all its limitations.

A deficient environment is a potential threat to the physical, mental, and intellectual development of all children. Winick and Rosso compared the brains of children whose deaths had been due to malnutrition with the brains of well-nourished children of a similar age whose deaths had been due to accidents. The researchers found that the brains of undernourished children had fewer brain cells.

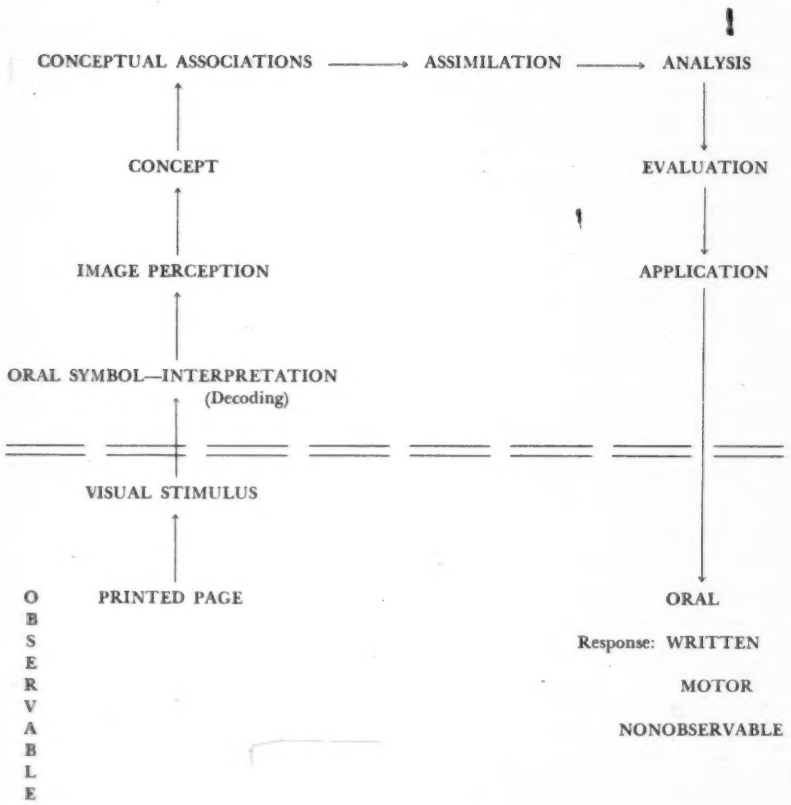
The results of recent research suggest that the intelligence of parents is a vital factor in the intellectual development of their children, not merely due to genetic factors but because of the nature of the environment offered by parents with low intellectual ability. Heber and his team and our team have found that the mother's intelligence is an important indicator of the intelletual development of her children. The lower the mother's IQ, the greater the possibility that her child will get a low score in the intelligence tests. Nevertheless, Heber and his Wisconsin team as well as ours in Montevidéo, concentrating on intensive work with mothers and children, have succeeded in raising the children's average intellectual quotients significantly. By enriching the environment we have made possible a more complete expression of the children's genetic potentials.

The attainment of maximum intellectual development takes place between the period of conception and four years of age. At birth, the baby's brain is 40 percent of its adult size; it doubles its size by two years of age, and at three, the child's brain reaches 80 percent of the adult weight. Research continuously supplies new data that emphasize that we must act during these formative years if we are to prevent the deficits that children of low sociocultural levels bring into the classroom when they enter school. We must apply the knowledge derived from the biological and social sciences to these children and channel their development so that they have better chances to enjoy successful and healthy lives.

Reading and the environment

Reading involves the use of language which is composed of sounds and words in a system that tries to convey meanings. A facility in the use of the sound system is a prerequisite for reading. But reading is not only an integration of sounds; it also involves visual symbols which represent a sound system. The reader, therefore, must be trained to identify and respond to visual symbols in order to understand the messages contained.

The reader goes through several stages, some of which depend upon his environment and his experimental background. The operations in the act of reading may be summarized in the following manner (*10*):



The processes which are integrated in reading include the following:

1. *Visual discrimination.* The reader must see the difference between one letter and another.
2. *Decoding* (interpreting). He must translate those visual symbols into the sounds they represent.
3. *Perception.* The reader must recognize the symbol and develop an image; for example, *dog* must be an animal he knows.
4. *Concept.* He translates the image and generalizes; for example, eucalyptus and ceiba are trees.
5. *Association.* The concept must be classified in the memory and related to former experiences.
6. *Literal comprehension.* The reader recognizes all the written fragments that are presented to him.

7. *Evaluation.* He uses an experiential criterium and ascertains the message.
8. *Synthesis.* He applies former knowledge for new experiences.
9. *Application.* The reader decides how to use the message.

The less efficient reader may carry out some of these initial operations while the efficient reader carries out the evaluation and synthesis processes.

What is the influence of the environment upon these processes? Language is basic. The average school child understands a large number of words and can reproduce their structures. His facility with language develops through the interactions that occur within and outside the home. He hears language from the moment he is born; but if in infancy and early childhood he is not stimulated to pay attention to language and imitate it, he does not acquire the necessary bases to use it. In studies that have been carried out with children of low socioeconomical levels, positive correlations have been obtained among poor language development, low reading ability, and a nonverbal environment. Children who grow up in nonverbal environments are not encouraged to speak; instead, they receive orders and usually are told to remain silent. The vocabulary of these children ordinarily consists of no more than 500 words as compared to the 2,500 words observed in children from highly stimulated verbal environments. Thus, when we expect the child from a low-stimulated language environment to describe, talk, and make statements in school, we find that he has limited ability to do so; and the sentences he uses do not conform to syntactic structures of the language. His language is different, with the result that he has trouble understanding the standard language.

Children must also be able to discriminate between visual and auditory symbols in order to learn how to read. Training leading to discrimination of sounds and forms almost always begins in the cradle: the father's voice is different from the mother's and the number of different sounds made by both stimulates the baby to imitate and make similar sounds. It is crucial that the mother and father speak to the baby and that they provide stimulation by fondling, smiling at, amusing him. Deprivation of such stimulation can occur in wealthy homes as in poor ones, and we see the results when children appear in school. It is difficult to overcome weaknesses in auditory and visual discriminations that originate in homes where stimulation is lacking.

Children of culturally different environments do not possess a background of information and a grasp of concepts typically treated in school books. If they can read the words (and some experience great difficulty in doing so), they do not have much meaning for them. Before such children

can experience success in reading, they must acquire a body of concepts on which an understanding of abstract symbols depends.

Research suggests a relationship between several factors and poor reading: inadequate vocabulary even in the so-called nonstandard dialect; lack of an early experience with a variety of forms and sounds; limited experiences related to the contents of books which are used in school; lack of stimulation through books; lack of capacity for discussion, for answering questions, and for solving problems; negative attitudes towards school, authority, and learning; and rigid restrictions on the child's behavior.

Moreover, linguists agree that every person expresses ideas in a dialect of the language he speaks. The Spanish spoken in Rocha may be considered a Spanish dialect, and the Spanish of the Montevidean may be considered another dialect of the same language. There are several dialects in a language; and race, geographic region, and social class determine which dialect is spoken. Linguists report that all dialects follow grammatical and phonological systems. From the linguistic point of view, the dialects of one language are equivalent to other dialects. There are differences among them, but one is not better than another.

Some researchers suggest that difficulty in learning to read arises when the language in which reading books or materials are written differs considerably from the dialect spoken by the child. Researchers believe the child's language interferes with his ability to learn to read. Others suggest that the teacher's attitude toward the child's use of a different dialect in speaking and reading influences progress. Still other investigators suggest that the cause of reading problems does not lie so much in linguistic differences as in some teachers' attitudes toward children from different socioeconomic classes who manifest learning difficulties. Teachers must learn to accommodate to differences wherever they occur and in whatever form they appear.

Developing trends for the 70s

In an early report (*6*) summarizing what we know about the relationship between sociocultural deprivation and learning to read I state the following:

1. The low socioeconomic classes are somehow inferior and suffer severe deprivation emotionally and cognitively.
2. Children from low socioeconomic cultural levels present problems in learning at preschool and school levels.
3. The educator will be able to lessen these learning problems.

4. Language deficits are considered to be the result of a neat difference in intellectual quotients.
5. After fifteen months of age the middle-class child increases his intellectual quotient while the child of low socioeconomic level decreases it.

However, as a result of some excellent research conducted during the past ten years, we have been forced to revise the ideas that prevailed during the 60s. We know that all classes of people suffer from some deprivation; that children who do not know how to read do not always come from socioculturally deprived homes and belong to the poor classes; and that neurological malfunctions which interfere with learning as a result of genetic disturbances in pregnancy and obstetric traumas are not characteristic of socioculturally deprived classes only.

Keith Berry of the San Rafael, California, Research Institute has reported that approximately 65 percent of children's learning which takes place during the first twelve years occurs outside the school milieu. This fact itself casts some doubts on the values we ascribe to schools and the ways they presently function. It appears that we must pay more attention to the educational forces that operate in the home and community than we have in the past.

Many children of low socioeconomic status do enjoy varied and enriching experiences that are full of sounds, signs, smells, noises, tactile perceptions, and pleasant excitations. And while the language of the poor is different, it is rich and colorful and in many cases highly descriptive and accurately applied. We should pay attention to the differences and integrate many of those differences into our own vocabulary and our own expressive language.

There is evidence that many high-risk children develop reading problems later on in life because their central nervous systems have suffered slight or serious damage. This decade of the seventies will witness great efforts toward early intervention into the problems of high-risk children who are classified in this way for organic or environmental causes. We shall see education developing the fundamental role assigned to it by the decade, that is, primary and secondary prevention within educational programing.

I believe that, regardless of sociocultural factors which promote differences in the ways people live, everyone who wishes to participate successfully in our society and partake of its benefits must learn to read. Do differences in the ways the rich and poor live account for differences in each person's ability to learn to read?

It would seem that the decisive differentiating factor be in space. The rich have it; the poor lack it. In the cities and in the rural areas space is

limited. Space is an expensive and magnificent convenience. To own it is not only expensive but the reason those who hold the power are able to isolate themselves in ample environments. It is the reason the middle class is able to move to the suburbs. But the poor remain in the overpopulated areas. Is space a basic need for man? I believe it is.

All children need the following to succeed, to enjoy cognitive mastery, and to have a sense of personal integrity:

1. ability to envisage and identify stimuli presented sequentially;
2. order in space;
3. aesthetic experiences based on a harmonious placement of objects;
4. silence: peacefulness in order to hear and be heard;
5. private life: a place for himself (territorial area);
6. predictable information, arising from his environment and expectations based upon past experiences;
7. opportunity to act upon the environment and receive positive responses to one's behavior; and
8. space to run and play.

On the basis of all that we know, may we not conclude that space is a fundamental requirement for living? It is possible that lack of space produces the most extreme frustrations in the poor child and in his parents, both of whom have developed a tremendous tolerance for which they have to pay a high price.

In my country the typical teacher is a woman of the middle class who has spent eight years trying to learn how to be a teacher. She seldom knows the frustration of not having a place of her own; she has been able to enjoy her private life without difficulties; and she usually prefers to teach children who come from the middle class. Both speak the same language and share the same cultural values. Her way of life is such that it is difficult for her to identify with and understand the child who has never had a place of his own, has never enjoyed a moment of silence, has never felt stimulated and rewarded for inquiring. It is not strange that the teacher I am describing may have difficulties in developing empathy toward such children. In general, our educators move about in what Jerome Bruner calls "vital environments" (such as home-family-school-church), all with sufficient space in which to live and grow. It is understandable that teachers cannot appreciate the learning problems of children who lack living space.

I believe it is essential that the teacher know the world of the child with learning problems, whether he be rich or poor, in order to make meaningful attempts to help him. The teacher must accept the challenge of this decade: he can no longer stay within his protected space. He must

feel compelled to understand the space problem endured by most children and to make room where children can learn. And if this alteration is not possible, he must lend assistance in order that this improvement may take place in the home. He must harmonize the actions of the school with those of the parents and community.

It is evident that parents must be taught how to teach. We are beyond the stage in which the teacher merely orients the parents. Education today must turn the parents into active agents in the learning process.

We should celebrate if this were the only task of the primary school teacher, but this is only part of the gigantic task that he must face as he works with children who, for some reason, are not learning to read. The teacher has to become a diagnostician and remedial agent. Whatever role he assumes, he must be careful about labeling these children. Labels do not solve reading difficulties at all. Labels—whether they involve dyslexia, autistic behavior, or perceptual deficits—do not convey usable information to the teacher. In spite of such labels we must find ways to teach children how to read. There is no doubt that in the relentless advance of science what today appears as fact may be tomorrow's fiction.

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Physical and Intellectual Influences on Reading Development

Physical influences

PHYSICAL INFLUENCES judged to be important factors in the act of reading follow:

General maturity and maturity for beginning reading. Both aspects have been pointed out as important and, consequently, tend to fix the concept that reading can be started only when certain conditions have been attained. From 1925 to 1940 particular emphasis was placed on the special maturity necessary to start beginning reading. Downing and Thackray (*9*) state that the investigations related to reading and general maturity show conflicting results and that ". . . the factors that contribute to the readiness for reading are the same which contribute to its success at subsequent levels."

Sex. Its importance in beginning reading as well as in its refinement has been revealed; generally, girls mature earlier than boys and are, therefore, in a more advantageous position. But new investigations show that the differences are not significant and in the act of reading there are undoubtedly social influences which mask what appears to be a result of sex.

Sight. Sight is primarily involved in the act of reading since reading is essentially a visual process. Visual deficiencies of various intensities have been blamed for failures in learning to read, particularly during the early stages (*27*). But later on their importance is lessened, and Goldberg and Drash (*12*) even assert that ". . . clinical experimental evidence shows that visual deficiencies themselves are not critical factors in the ability to read."

Hearing. The child who begins to read knows the words from hearing and saying them; this is the starting point for learning the mother tongue. Johnson and Myklebust (*16*) point out that ". . . although reading is basically a symbolic-visual system, many auditive integrities are essential for their acquisition. These integrities include the ability to distinguish differences and similarities between sounds, to perceive one sound within

a word, to synthesize sounds within the word, and to separate it into syllables." It is obvious that although auditive power is not related to reading, the existence of a normal auditive capacity prevails over all these considerations.

Speech. Reading and writing—written language—derive from spoken language, and this is the only point of support in the experience of the child who begins these processes. Children with speech deficiencies have a tendency to transfer them to reading and writing. Quirós et al. (*23, 24*) studied this subject with regard to the Spanish language.

Neurological factors. The situation regarding neurological factors in reading is confused. Since Strauss' pioneer work (*29*), the relationship between neurological factors and reading difficulties has been in the foreground, particularly with regard to the attention paid to it by neuropediatricians. Two concurring kinds of studies have lead to the establishment of this relationship: on one hand are the medical studies on so-called "brain damage," "minimum brain damage," or "brain dysfunction"; and on the other hand are the findings in the neurological and electroencephalographic examination of a certain number of children with reading difficulties (*7, 26*). Furthermore, there are well known cases of children who have serious reading difficulties but no brain dysfunctions or neuropathological conditions as well as cases of children who have no reading difficulties but who do exhibit these conditions. Downing and Thackray (*9*) state that "cases lacking neurological readiness for reading are very rare" and that "if there are neurological factors in the readiness for reading, they do not have any significance for the teaching methods."

Orton's pioneer work (*21*) seems to offer a promising explanation for reading difficulties: left-handedness and inconsistent or mistakenly established lateral dominance (dominant hand on one side and dominant eye on the other). This explanation centers on the general question of cerebral dominance. Perhaps the old and universal association between the "left-handed" and "sinister" has given this explanation its peculiar attraction, and children with reading difficulties did come out of the shadows when they were compared to left-handed persons in history, particularly Leonardo da Vinci (*2, 15*). According to Downing and Thackray (*9*), Hallgren's important study, which points out the presence of reading failures in the family history of deficient children and, therefore, suggests a possible hereditary facor, "contains a logical fallacy because it disregards the fact that families share the same environment." Subsequent investigations show that although many children with reading difficulties exhibit left-handedness, crossed laterality, etc., many others exhibiting the same conditions learn without any difficulty. Critchley (*6*) points out in this same sense that undoubtedly many dyslexic individuals are unequivocally

right-handed and without any left-handedness or ambidextrousness in their family histories.

We cannot fail to mention that as the study of the child's cognitive processes advance, new information is uncovered, including physical data which were formerly unknown (*10, 11, 17, 25*). As Popovic (*22*) says,

> . . . an adequate visual and auditive perception was necessary for the child to identify beings and learn their names correctly: the knowledge and control of his body posture and gestures in the surrounding spaces allowed him motion and adequate motor coordination for the emission and comprehension of verbal concepts; through the notion of time he acquired the use of rhythm and the necessary sequence for emission of harmonic and melodious speech. For the organization of reading and writing, a high degree of organization and interrelation of these functions is necessary, and it is evidently based on an already acquired internal language.

Intellectual influences

The influence of intellectual elements on reading development is difficult to identify because in our civilization it is almost impossible to establish a near separation between the intellectual and the cultural. Cultural influences act heavily upon the intellectual development of the child; this factor is quite evident in the condition known as subcultural backwardness. Intelligence develops on the basis of cultural elements; this point is clearly described in all the investigations carried out on vocabulary extension and in much other contemporary research (*4, 13, 14, 28*). The linguistic factors included in writing manifest a dominant role here. We can state without fear of making a mistake that reading and writing represent a much easier learning process in certain languages than in others, particularly when the language has mostly phonetic writing; on this account, it is likely that in those languages this type of learning may start earlier, not because the children are more intelligent but because the coding-decoding system is simpler. This same fact leads us to point out the absurdity in the situation behind what Braslavsky (*5*) has so accurately called "the dispute over methods in the teaching of reading." Surely, depending on the language coding system, certain methods in teaching are more logical than others.

Intellectual influences are important because they affect the essential aspect of reading—comprehension. The currently mentioned ones are intelligence, mental age, and intellectual quotient. The determination of an optimal mental age and intelligence quotient for beginning reading and its normal development has been set by some educators. The mental age for the initiation of reading is fixed between six and six and one-half years, although some increase this age to seven.

In connection with what has been said about the close correspondence between the intellectual and cultural factors, we cannot ignore a present movement which tends to take the beginning of reading to a much earlier time, mainly on account of a new sociocultural element represented by a technical device which did not exist before, and which has developed a new system of visual-auditive stimuli acting on the child—namely, television. Perhaps for the first time in the history of mankind, small children are being subjected to a simultaneous bombardment of written words on the screen and broadcast over the audio through television advertising. It is well known that three- to four-year-old children run toward the TV set when in the distance they hear the jingles advertising certain products and that they follow the images—including the written words—attentively. Thus they learn a series of words and even sentences globally. Children are subjected to stimuli unknown by former generations and, consequently, it is likely that they are not more intelligent but receive earlier stimulation. The written word becomes alive and familiar to children before entering school since the word is accompanied by music and song. In his explosive work, Doman (*8*) states that teaching reading at six years of age means letting the most adequate period go by, because ". . . it is truly surprising that it took us so many years to realize that the younger the child is when he learns to read, the easier reading will be for him and the better he will read." Doman believes that the age to start reading must be lowered to three.

It seems sensible to subject seemingly definitive concepts to a periodic revision when new technical elements appear in such a massive way. In this case, it is possible that certain aspects which are considered evolutionary, and therefore established forever, may undergo an abrupt change. The old controversy of nature versus nurture seems to be spectacularly renewed in the question of beginning reading.

There have also been attempts to establish a minimal intellectual quotient prerequisite for reading. It is known that such an authority as Gates (*18*) has upheld the theory that children whose IQs are lower than 80 learn to read with great difficulty and spend a great deal of time doing it. The lower intelligence limit for learning to read is 65. At present these figures are also undergoing revision.

Although it is possible to argue about these figures, the relationship between intelligence and reading development, particularly reading comprehension, has been repeatedly demonstrated. Reading is a complex process, and nobody is surprised that the more intelligent children—usually from higher sociocultural levels—feel more stimulated to learn to read by themselves instead of depending on others to do it for them.

The children become fond of reading and practice it because in their homes there are books and there are people who read. Finally, there is a whole investigation effort on the search for more specific intellectual abilities required in reading (*19*).

Perceptive abilities in the visual and auditive fields. Sight and hearing have already been mentioned among the physical factors. It is no longer a question of the reception of those stimuli but of the much more complex process of interpretation of the visual and auditive patterns arriving through these telereceivers.

Regarding perceptive-visual abilities, reading is expressed by means of symbols which must be taken in, understood, and decoded in order to be read. The reader does not face letters—except in the few cases where a word is made of only one letter—but sets of symbols which in some languages may become extensive (as in the Spanish "intermitentement").

Maturity in visual perception, considered from the evolutionary point of view, leads to the levels concept: from perceptual discrimination to a subsequent one of perceptual analysis and a final one of perceptual synthesis. It is Birch's hypothesis (*1*) that one of the problems contributing to the development of inability to read is the inadequate development of these higher and more complex levels of the perceptive-visual function.

Insofar as visual perception and reading are concerned, it is no exaggeration to assert that little is known about them. Noton and Stark (*20*) emphasize the detailed recognition of objects as a counterpart to the global one upheld by the Gestalt supporters; they assert that should this second hypothesis be confirmed, the consequences for recognition in the case of reading would be limitless. The jump movement of the eye in reading is being studied again (*30*), and many other discoveries might occur as a result of the present association between electronics and physiology.

Regarding perceptive-auditive abilities, the beginning reader does not hear phonemes but words and sets of words, and only an adequate visual-auditive association will allow him to individualize the phonemes in words and sentences reaching him. The process of linking the phonemes, once they are identified, is not an automatic one, as shown by many children who are able to spell clearly but cannot achieve the final word synthesis. Hence, the analysis and the auditive synthesis are processes a reader must fulfill, but little is known about them.

Conceptual aspects. Apparently, visual perception is more important than intellectual factors in beginning reading, but as reading advances the conceptual aspects become more important on account of comprehension. Here is an interplay among conceptualization, reasoning, and, in general, all cognitive aspects.

To read and to write implies symbolic activities and, therefore, abstract ones. If words are symbols of things, the written word is a symbol of a symbol. The symbolic aspect of writing is not understood by all beginners since it must be preceded by the establishment of an internal language. As progress in reading takes place, the reader tends to follow the trend of thought more by use of the context than by his mastery of long and complicated sentences with subordinate clauses; of complex and inverse constructions; and of elliptical, metaphorical, and allegorical aspects.

The degree of intellectual and linguistic development necessary to understand the simple sentences in a first reading book such as *Veo un Ave* (I see a bird) is completely different from the one needed to understand the poem by Luis de Góngora, in which he says ". . . The miracles of court are these: / That deceit takes its place / Close beside the great / That riches can clothe / The fool with understanding / And the semblance of great talent / Be the ambitious to speak truth / And that lying receives / The commendation of full fawning honour / The miracles of court are these / . . . ."

Final considerations

At present and in spite of all the research, we do not know much about the process of reading, particularly its later stages. Robinson (*27*) states something that we all feel is dramatically valid when she says that after thirty years of working on reading ". . . today I know less than when I started." It is imperative that we reinvestigate problems which we think we have resolved. To cite only one example, Bower's sensational investigations (*3*) call attention to perception by the infant.

A great confusion in our present knowledge arises from the fact that certain characteristics which are considered causes of bad reading have not undergone parallel research in normal readers. Many of our correlations between certain factors and reading difficulties may not mean what we believe because they may not be linked by causal bonds but may be the effect of another still unknown factor.

We believe that the knowledge of the reading process must be complemented with the exchange of transcultural experiences: the knowledge of only one language may lead us to possible inaccurate generalizations resulting from the fact that they only respond to linguistic aspects of that language. This statement means that it is urgent to distinguish which reading aspects refer to intrinsic processes and which ones derive from the language coding-decoding system. At present, both aspects are highly confused; and here we have a subject for investigation which we should immediately undertake because of its universality.

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Development of Language and Reading

IT IS EVIDENT that reading and writing may be regarded as intermediate stages in the development of language. We shall consider—as we have been doing for years—reading and writing jointly as reading-writing.

Reading-writing may be studied as a mechanism or as an intergral part of language development. There are different ways in which to consider reading-writing from a language development viewpoint:

1. We may accept a philosophical-historical analysis of human learning where language and reading-writing would be included (phylogenesis).
2. We may study the development of language and the appearance of reading-writing within the general frame of infantile development (ontogenesis), as genetic psychology has done.
3. We may include the acquisitions of language and reading-writing within learning behavior, such as behaviorists do.
4. We may recognize, with the linguists, that the ability to develop language is innate and unique to the human being and that the process of learning is in itself an innovation and responds to generative grammatical models.
5. We may believe, as do the cyberneticists, that the development of language and reading-writing can be explained by sensory-motor models directed to information-learning and depending on the functional possibilities of the organic system which permits said acquisitions.
6. We may also add other models which are well known. Included among them are the stimulus-response theories and cognitive theories. It is difficult to understand why so many people continue to stress these explanations over others. More than one model is needed to explain all learning.

The philosophical-historical treatment

The analysis of the appearance of reading-writing in the evolution of the human species involves a special interest which becomes the basis for

research in the development of language and reading-writing. We all know that writing began with signs, pictographs, pictograms, and ideograms. We also know that alphabetic writing appeared some 5,000 years ago in the Tigris-Euphrates Valley, where it changed from the phonogram to the alphabet (*11*). Alphabetic writing appeared in its own time as a material need; long afterward, it met a cultural need and became the principal instrument to use up time, as Korzybski indicates (*6*). Let us remember that Korzybski, the creator of general semantics, considers the human being to be a great consumer of energy, space, and time. Time consumption refers—according to Korzybski—to the cultural heritage left by the human being throughout the ages. So far, the most precious agent of that cultural heritage is reading-writing, although we have reasons to believe that electronic computation is going to be a more developed form for storing reading-writing. In a certain sense, computation acts as a communication and knowledge system which is inverse to reading-writing. However, it is evident that reading-writing allowed mankind to advance a great deal in the past 5,000 years, particularly when we consider what life was before reading-writing and what has happened since that time.

Several factors account for the appearance of reading-writing in all human cultures:

1. Reading-writing developed in permanent or settled communities. This fact may be taken into account by teaching theorists; reading-writing requires an intense human interrelationship.
2. Reading-writing historically required a highly developed oral language in the community where it appeared.
3. Preceding the historical appearance of reading-writing was the development of privileged castes (military and priests) who ruled the region and enjoyed its benefits. Feelings of security, realization, and well-being permitted the appearance of reading-writing within an elite who enjoyed those conditions.
4. The developments of architecture and arts historically preceded the development of reading-writing, not only because both effectively contributed to the welfare of an elite but because they demanded an amount of knowledge that facilitated the appearance of reading-writing.
5. The motivations for the development of reading-writing were not cultural but material ones. We must remember that the ruling elites in all primitive societies were the military-religious castes. In those societies the temples were true corporate entities which not only strongly influenced the cultural evolution of the times but also owned large prop-

erties (granted to the god therein worshipped), the profits of which went to the religious community. A great number of servants and slaves worked for the priests who extended their interests until they maintained an active business, supported industries, granted loans with interests, etc. It is wholly impossible to maintain such activities without having fast documentation media. As a result, alphabetic writing study emerged. What are the motivations which may lead a child to acquire reading-writing? Surely the philosophical-historical criterium may allow us—and even suggest to us—a series of highly interesting considerations about the development of language and reading.

The psychogenetic analysis

Although different authors have deeply studied the ontogenic evolution of knowledge in the child, Piaget's research attained special importance (*7, 8*). In different papers and books we have pointed out some of Piaget's most important contributions to the subject of acquisition of knowledge and language in the child (*9, 10*). According to Piaget, a child's thinking powers are established in three great stages: 1) development of sensorimotor intelligence, 2) development of objective-symbolic thought, and 3) development of logical-concrete thought. Piaget was influenced by Stern and Claparede in the sense that he accepted all psychic adaptation to new situations as intelligence and thus studied from birth the child's reactions and adjustments to new situations. I have no intention of reviewing the bases of genetic psychology here. However, it might be useful to consider an outline of ontogenic evolution which I shall discuss.

Months	*Period*
0–8	Corporal-gesture connection
9–17	Speech comprehension-expression
18–35	Concrete thought (objective-symbolic)
36–71	Speech internalization
72–143	Reading-Writing
144– —	Formal thought

Although this outline is useful for general clinical work, its application to communication pathology may lead to mistaken confusions from the therapeutical point of view. In fact, in various pathologies (deafness, for instance) some of these stages may be distorted and indicate pathological evolutionary patterns: the deaf child has the necessary motivations for an early introduction to reading-writing elements because in him

these elements are part of the innate communication demands. (Let us remember that communication in the civilized world includes linguistic symbolization, something which is not part of natural or primitive communication.) But his logical-concrete thought develops later than in the normal-hearing child, despite modern educational provisions for teaching him.

Moreover, Piaget's concepts stress specific stages which at times do not appear in pathology either. Thus, for example, in the blind, hearing may acquire functions which usually are not inherent to it—such as supplying information on space, distances, orientation, etc. Every perceptive system which must adopt roles from other perceptive systems modifies its work processes and, therefore, its possibilities of apprehension and inclusion of knowledge of the surrounding environment.

Nevertheless, Piaget's contributions have undeniable value, and for that reason we are likely to use them whenever we need them. Therefore, in order to detect promptly whether a child is able to incorporate reading-writing, we use a test originally based on Piaget's orientation but into which has been introduced other principles. This test is based on 1) notion of right and left, 2) verbal nonsense, 3) a three-finger test, and 4) three questions about thought consistency. We believe that this test serves the purposes for which it was intended; thus, applications from genetic psychology are shown to be practical and effective.

A behavioral design

Skinner developed the notion that the acquisition of language is essentially a linear process starting from primitive forms of behavioral control. Later on, by means of repeated reinforcements, successive improvements or approximations of the verbal results are gradually obtained until adult verbal behavior is achieved. Thus, according to Skinner, motor and verbal operants are initiated, and these may have an initial relationship with imitation. These operants (or actings) are reinforced with awards, and thus the integration of knowledge leading to identification of messages and subsequent adjustment to syntactic structures is made (*13, 14, 15*).

It is evident that the behavioral approach of operant conditioning may be applied in numerous pathologies when we cannot succeed in achieving learning through any other system. In the same way, the young normal child can profit from the integration of information through these same techniques. We do not doubt that operant conditioning can be a highly effective method to use in many pathological cases as well as in working with the normal child. We have accepted this approach for a long time.

A linguistic analysis

According to Chomsky, language associates sound and meaning. The child has an innate, unique capacity to develop meanings and this ability allows him to rapidly attain real competence without need of formal instruction. The child does not learn language fundamentally, as it is supposed, on the basis of sentence repetitions, but he innovates in his daily verbal realizations according to the language grammar.

For Chomsky, language is integrated on the basis of perceptual models in which signals or other information gives place to syntactic, semantic, and phonetic representations, all without need of careful instruction or reinforcement. Thus, the sets of rules develop which ideally may describe a language; within this model they shape that which is understood as generative grammar.

In generative grammar the structure of a sentence may be diagramed on the basis of the relationships among its different elemental parts. Thus a sentence should have a noun phrase and a verb phrase. In turn, each one of these phrases should have other elements, and some of them could likewise be subdivided. This is what Chomsky calls the "tree diagram" of generative grammar. The innovations introduced by children are found in spoken as well as in written language. It is quite possible that in Spanish a child may formulate the past tense of "caber" as "cabió" instead of "cupo" or that in English a child may say "mouses" for "mice." The rules are found and applied by the children themselves, evidently without previous reinforcements.

The linguistic design provides us with concepts which may be applied to the contents of language learning and reading-writing. These concepts supply specific information regarding the way in which grammar structures arise when the child begins to speak or to read. Their knowledge and applications may be useful to teachers who seek to promote the development of reading-writing.

A cybernetic analysis

In the 1940s, Wiener introduced cybernetics, a name derived from the Greek *kuberneticos* which means "belonging to the government." Cybernetics is, then, the science of governing. In order to realize the type of government referred to by Wiener, one muts think of servomechanisms, self-controlled machines (*16, 17, 18*).

Among cybernetic principles, two are particularly important: the feedback notion and the model notion. The definition of feedback, according to Wiener, is "the perceptual reactions of a person to his own responses;

a process by which goal-directed responses are checked and corrected." According to Amósov (*1*), "model" is the system, structure, or program of activity which in greater or smaller measure is a reflexion of another system, structure, or program. Models must be developed to obtain information.

The models may be temporary or permanent ones (that is to say, with a memory). Both models are based on the assumption that information excites neuronic complexes; while the temporary model should be limited to the complex, in the permanent memory model excitation should reach the intercell connections, thus establishing the formation of stable codes.

Written or spoken language represents a combination of many external stimuli. In the presence of such a diversity of stimuli, the body cannot respond to the totality of the stimulus. And the response may be conditioned to the action patterns and programs of the memory. In reading, the system works the same as in language, emphasizing one word among the others, amplifying it through internal energy, and inhibiting the disturbing elements. The rest of the information simultaneously presented continues to be elaborated (words are formed with letters, and they can be recognized but with a low energetic component). A much greater volume of information is always elaborated in the subconscious than in the conscience. The amplification-inhibition system determines on the basis of energy input the sense of the information that is elaborated at the cerebral level.

Learning, language, and reading: corporal potentiality

The five systems which have been analyzed contribute to our understanding of learning. We can agree that, regardless of the ontogenic stages of knowledge, in the beginning there may exist imitative conditioning for speech or reading-writing; that later on operants may appear; and that finally intrinsic individual developments appear which begin to respond to feedback from actions. We should analyze feedback. Contemporary science seems to consider feedback a synonym for retroaction. The writer cannot agree with that analysis.

The term *action* does not mean movement but input. As a consequence, it also refers to "implementation of motion" as well as "implementation of reception." *Retroaction*, on the other hand, is the "specific information about all action, produced before the final result." Finally, feedback has the meaning given it by Wiener, that is, "information obtained from the final results with verification and corrective reactions determined by them."

If we consider the act of writing to be a coordinated motor act, we shall differentiate actions and retroactions with different closing or cir-

cuit levels: 1) low preparation levels, spinal ones, the action of which is carried out by Sherrington's myotatic reflex and the retroaction of which is affected by Laporte and Lidell's antimyotic reflex; 2) cerebellar levels forming circuits of arrival from and to the spinal cord; 3) thalamic and globus-pallidus striatum levels; and 4) cortical levels. Each one of these circuits intervenes to a degree, but they all have active and retroactive impulses. On the other hand, feedback refers to the fact that once the result is produced, vision supplies information which makes possible the verification and final correction of the retroactions. But it is not only vision; the pressure exerted on the pencil and paper also produces feedback. Even by placing the other hand on the one which is writing, we have another feedback, a tactile one. When a blind person writes, feedback refers to the sense of touch. Undoubtedly, independent of these external feedbacks there is also an internal feedback which is the result of previous experiences and which is stored in the memory.

The essential difference between retroaction and feedback lies, then, in the fact that while retroaction informs about the acting system (it is a specific information of the system), feedback reports on the results of this action through other information systems.

Let us consider another example: the emission of voice feeds back the phonic system mainly through the ears. But before voice appears, there is somaesthetical information and information of other kinds (which as a whole make up retroaction) regarding the way it is produced and how the inflow culminating in voice takes place.

Feedback may supply additional information when a specific system fails. Thus in the blind, audition may supply space information which is important for displacement. For the near-sighted or amblyopic learner the teaching of writing may be facilitated by the addition of a correct auditive-spacial program. We should never use this additional information (audition in a special role) with persons of normal sight. Whenever a system supplies information which does not correspond to its specific functions, we speak of an "extra load" on that system.

However, in order to produce learning, every system must be able to act on and supply information with correct expansions and inhibitions of the stimuli it receives. For example, if the visual system does not succeed in expanding or inhibiting necessary elements, reading becomes impossible. The system begins to suffer an overload since it receives multiple interferring stimuli, and learning does not take place.

It is difficult to understand why this simple fact of learning is not recognized; so often we ascribe success or failure in learning solely to teaching methodologies. Perhaps this practice is why we continue to search for a "best" method of teaching.

As the external demands of learning grow stronger, or as the individual deficiencies become deeper, the required central nervous system level increases, and the required complementary retroactions and feedback grow higher. The higher the central nervous system level required to "keep up" information, the greater is the disturbance in learning. Too great a linkage to the sensory-motor information circuits overloads the system.

When the information channels are left at the service of the higher levels (this is the former situation in the reverse), learning takes place. An analog is corporal potentiality. We may define corporal potentiality as the possibility that an individual can exclude his body (that is, the continuous information sensory-motor circuits) in the process of elaborating, transforming, and including (learning) available information. More briefly, we may define corporal potentiality as the ability to exclude the body in order to learn.

When we take some children, dyslexic children for example, to work on the floor, it is in order that the negative interferences produced on those children by the usual sitting position do not act in a negative way upon learning. Of course, each child must be examined in order to find out whether learning with a much greater bodily support is advisable.

In beginning reading-writing, retroactions require high central nervous system levels, feedbacks must be strong, and corporal potentiality is usually moderate. Once the learning of reading-writing takes place, retroactions play on low central system levels; feedbacks must be much lower; and corporal potentiality, on the contrary, is much higher.

Conclusions

1. Some of the modern approaches to language and learning may be used in the programing of specific tasks in learning; others, for contributing to diagnosis and prognosis in learning difficulties; and others, for suggesting the adoption of definite resources, procedures, and working methods.
2. Clinical treatments of problems in language and reading-writing require adequate knowledge of the neurophysical bases underlying every learning process. Among those bases are corporal potentiality and its practical applications.

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Language and Reading

HOW HUMAN BEINGS ACQUIRE LANGUAGE is a subject that has been neglected by linguists until quite recently. The so called "structural" linguistics had self-imposed limitations in the study of language; these limitations were many times mistaken for scientific rigor. Structuralism was only interested in the forms, the statements, and the act of speech. Work was carried out with this inert material; nevertheless, decisively important results for understanding language were obtained. Particularly, the advances achieved in the field of phonetics were remarkable. The analysis of language morphologies also allowed a thorough knowledge at this level; syntax and semantics, however, did not have an important place in the plans of the structuralists. Semantics, in most cases, was considered as an extra linguistic problem which should be considered only an auxiliary method in analysis; syntax, although not so neglected as semantics, sometimes presented unsolvable problems within those limited, self-proposed aims.

Structural linguistics did not deal with other problems which were beyond the linguists' main interest. The relationship between language and society, the problem of universals, the relationship between language and the speaker's psychological makeup, the process of language acquisition, all were problems hurriedly considered as nonlinguistic ones. It can be said, however, that certain structuralists have been concerned with these problems. For example, there are Jakobson's explorations into child language and aphasias (although they always referred to the phonic level of language, i.e., how the child acquires the sounds of one language and how the aphasic loses them). But his analyses do not have the coherency and precision of rigorous theory.

The concept that the only fit object for linguistic study was the spoken language had been treated as dogma. In the interest of science, written language was relegated to secondary importance. Lyons (*7*) says that "the spoken language is prior to the written," and adds that "the primary substance of the expression-plane of language is sound (in particular, that range of sound which can be produced by the human speech organs); and writing is essentially a technique for transferring the words and sen-

tences of a language from the substance in which they are normally *realized* to the secondary substance of shape (visible marks on paper or stone)." It is not a question of denying Lyon's brilliant and concise Hjemslevian analysis; but assertions which are only half understood or misunderstood may be misleading. He is suggesting that the only important consideration in linguistics is the spoken language and that the written one does not deserve study. Such a limitation precludes the possibility of any collaboration of the linguist with the reading technician since the latter's object of study is mainly the process through which a reader obtains information from a sequence of graphic signs.

Linguistics and reading

With the advent of transformational grammar in 1957, all the areas previously ignored by most linguists became proper fields for study.

Since Saussure, the language phenomenon has been considered as an object in which one could distinguish two different but not clearly specified aspects: the "langue" and the "parole" (to use the same terminology of the Genevan teacher). But the langue was not neatly defined in Saussure (subsequent theorists and interpreters of the course tried to classify Saussure's ideas), and it was rather thought of as a static product, of a social nature, and as a repertoire of forms which should be owned by every speaker of the language to make possible his communication with other members of the same linguistic group. Today we tend to consider langue not as a mere file of forms but mainly as a system of rules which the child infers during the process of language acquisition from the concrete data of the language spoken in his environment.

He who knows a language tacitly knows its system of rules, and this fact cannot be disputed by anyone, no matter what school he belongs to. According to Katz (*6*), "This is the only assumption by means of which we can explain the magnificent faculty a speaker has to use language creatively. Fluent speakers produce or understand sentences which they have never encountered before, and they can do it indefinitely, as many times as new sentences may require it."

Transformational grammar, understood as a language theory, assumes the existence of three components in the mechanism which generates and interprets the sentences of a given language: syntactical, phonological, and semantic. In the first version of the theory (*1*) the syntactical component was considered central because it has generating power; the other components—the phonological and the semantic—were considered interpretative; i.e., they acted on final chains providing respective phonological and semantic interpretations for the generated chain. Today we know

that this point of view, as a result of the advances in semantic studies, is being modified. Syntax, however, is the great discovery of transformationalism; its methods supercede certain models in fashion before Chomsky; e.g., the model of immediate constituents.

Phonology is not a problem to be considered here since the normal school-age child ordinarily is able to make appropriate speech sounds. Naturally, the correct acquisition of such ability will influence the learning of reading later on. In this regard it may be pointed out that the different graphic systems of each language may influence, and surely they do influence, the reading problem. We know that some written languages are more phonological than others: just compare French and Spanish. Spanish normally presents one grapheme for each phoneme, a rather uncommon phenomenon in human languages. The grapheme-phoneme correspondence, a whole virgin field for research, must be studied in each language in order to achieve better organization of reading materials, particularly in linguistically problematic areas, such as the Uruguayan-Brazilian frontier zone. This zone is mentioned because it is familiar to the writer: there, the incidence of two languages (Spanish-Portuguese) on the so-called frontier dialect gives origin to important reading problems in school children.

Semantics is a field perhaps more closely related to reading than phonology, and modern linguistics has more and more to say about it. We know that each community (linguistic or dialectical) organizes experience in a different way: "Semantic structure is essentially the linguistic organization of experience" (*8*). According to Hjemslev (*3*), the unique universal substance of the contents corresponds to a specific form of the contents in each community. Hjemslev's idea may be applied to child language and be related to the progressive acquisition of more subtle hues in the linguistic expression of experience. Naturally, this refinement is acquired by the child as his education and his relationship with the world advance. His initial experience of the surrounding universe becomes gradually more complex, and objects and concepts gradually become interrelated, resulting in the development of semantic fields. Vocabulary acquisition, which is erroneously considered by some teachers to be paramount, helps him to acquire the semantic structure of the language.

Syntax, a dominant element of modern linguistics, is a factor to be considered in learning to read. How knowledge of syntax is acquired ". . . may lend insights into the organization of linguistic information in the human brain" (*8*). The study of syntax includes all the formal features of the language which express meanings or relationships within a given language; e.g., word order, agreement, inflection, and rules. Naturally, each language has its own formal, specific, and detectable features, particularly in its surface structure.

But modern grammatical research has established certain universals common to every language (the same as in phonology). Here work is done with what Chomsky has called the depth structure of language and with the interrelationship between syntax and semantics. All depth information is necessarily semantic although this assertion may be disputed. Absolute universal features in human languages are 1) *double articulation*, which is shown in the presence of two types of units, morphemes and phonemes; 2) the concatenation of these units; and 3) the *grammar* governing that concatenation, which the linguist may formalize according to various methods.

Linguistic theory attempts to explain how the child acquires the grammar of his own language; that is, its syntax. Until a decade ago, we believed that the child acquired language by means of the simple repetition of structures, words, and statements. The subsequent task in his development would be merely to substitute or exchange new elements for those already learned (*1*). This explanation is too mechanistic and denies the speaker's own creativeness. In general, it is a mistake to assume that after the earliest stages much of what the child learns is acquired by imitation. This reasoning cannot be true on the level of sentence formation since most of what the child hears is new, and most of what he produces is new (*2*).

This is a fundamental point in the linguistic theory proposed by Chomsky and others. The child does not imitate but infers—beginning with the data supplied by the statements he listens to—increasingly complex rules which lead to the possession of the correct grammar of his language. This process may be considered as an internalization of grammar. Naturally, there may be causes which originate a bad internalization. Keeping this fact in mind, it might be helpful to point out certain problems within the field of dialectology and sociolinguistics.

Standard and nonstandard dialects

Today we consider there is a standard language in each community which could be called official. This standard language is used in administration, generally in literature, in mass communication media, and in education. But not every member of the community masters the standard; a high percentage of the population deviates from it to some degree. The causes of this deviation may vary but where the individual was born and/or where he lives and the sociocultural class to which he belongs are decisive factors. Differences in the phonological-phonetic level exist in both geographical and social dialects. Certain differences at a phonetic level may produce a change in the phonological subsystem of the dialect and thus generate a clear contrast with the standard. There may also be

discrepancies at the semantic level between standard and nonstandard speech; in vocabulary the divergence is also common.

With regard to the bad internalization of syntax, I believe the problems it creates are not so damaging as those of phonology, semantics, and vocabulary. The differences between the syntax of standard and nonstandard speech cannot be of such magnitude that they become real obstacles in reading texts which have been written in the standard syntax. However, the differences exist. From the linguist's point of view and in terms of rigorous analyses, two texts, a standard and a nonstandard one, may present minimal differences in their order, agreements, rules, etc. And there is the delicate and complex problem of the form in which the child internalizes and acquires syntax. We know little about this matter in spite of creative investigations on the structure of the brain vis-à-vis the cognitive process. A nonstandard dialect child may have difficulties in reading a text based on standard terms. But how is it possible to find out where crucial differences lie? A dialectological comparison between the standard and the nonstandard dialect would be of no use because the grammar of the child from a nonstandard community (the same as that of every child) is still in the acquisition process. What should be done is to think of a method to measure the acquisition process in a child and then to see the degree of correspondence between those data and the language in the surrounding environment (*5, 10*).

But there is another problem that seems to be at least as important as syntax. The study of language must not be limited to the mere description of that system; the study must also include an analysis of the relationship of the speaker of the language with society and the situation. We know that typically the situation (defined as all external circumstances surrounding the speaker) imposes a type of language called "record," which differs in each case. The record is the linguistic expression of a role. The teacher in the classroom does not use the same record as he uses when as a father (he is now playing this role) he talks to his children. A fluent speaker of a language must not only master it but must also be able to distinguish among different situations and, according to the role, select the adequate record. This is what we call sociolinguistic competence. This is an aspect of language that should be taken into account by teachers. During the early years of his school life, the child has not acquired sociolinguistic competence; and it may, therefore, seem strange to listen to a teacher who identifies his roles with certain linguistic forms that he believes to be renowned or superior and who tries to impose them upon pupils. This is not a criticism of the teacher who selects an adequate record for his role but of one who uses a language which is strange to the pupil. In the best of situations the child will gradually be-

come conscious of (internalize) the adequate record; in the worst he will realize a dichotomy between "lower" and "higher" dialects or ways of speaking and inevitably identify the "higher" with the teacher's language.

Since this is a serious problem, all teachers should be aware of it. It involves a set of attitudinal issues which should be studied jointly by linguists and sociologists. Interesting data about teacher-student interaction in the classroom might establish the degree of influence that lack of congruence in speech has on reading progress. The results of such studies could enlighten teachers to the point of accepting all dialects no matter how divergent they might be from a so-called higher standard.

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Dialect, Bilingualism, and Reading

THERE IS INCREASING EVIDENCE that before more meaningful inroads can be made into improving reading instruction for the illiterate people of the world, national and local school systems must adopt new attitudes toward the nonnational languages and the dialects used by different groups under their jurisdictions (*1, 2, 3, 5, 8, 9*).

The need for such change in a world of rising expectations seems dictated by enlightened self-interest on the part of nations faced with the necessity of unifying their populations for economic progress and the welfare of their people; by sound pedagogical principles, which consistently hold that a child learns to read only after he has learned to speak a given language; and by sheer humanitarian concern for the welfare of children who frequently develop serious emotional problems and poor self-concepts because of their lack of scholastic achievement when they are educated in a language different from their own mother tongue.

In the United States, the National Advisory Council on Education of the Disadvantaged called attention to the fact that despite enormous expenditures of energy and money in the area of reading programs and remedial reading, children in the ghetto are still not learning to read. One of the chief characteristics of any ghetto seems to be that its inhabitants speak a language which is different from the national language. This divergence gives rise to most of the problems met in educating these pupils. For example, as many as half of Boston's estimated 10,000 Spanish speaking school children were not in school in 1968, and between 1965 and 1969 only four Puerto Rican students were graduated from Boston high schools. In New York City where approximately 250,000 Puerto Rican children attend public schools, the dropout rate is as high as 85 percent. The 60 percent who survive until the eighth grade are three to five years below reading level. Similar statistics are found in schools of Chicago, Philadelphia, Los Angeles, and nearly any other city having a large proportion of linguistically different children in its population (*4*).

Bilingualism

The role of language in learning to read is most clearly seen in the problems of the so-called bilingual child. Such a child begins school with a speaking knowledge of a language which is terminologically, syntactically, and grammatically different from the national language in which he is instructed. The consequences of beginning an academic program with such a linguistic handicap should be apparent from statistics gathered in many places in our country where considerable numbers of such children attend the schools.

In five southwestern states, between two and three million Spanish-speaking children attend schools in which all instruction is given in English. In New Mexico, more than a third of these children are in the first grade, and over half of those in grades above five are two years or more overage for their grade levels. The learning problems of these children are so severe that one Texas school board required all children with Spanish surnames to spend three years in the first grade, and Chicanos, those with Spanish-speaking background, were put into classes for the mentally retarded on the basis of intelligence tests administered in English (*4*).

Statistics regarding the education of more than 200,000 Indian children in public or Bureau of Indian Affairs schools is pretty much the same. The Indian dropout rate is more than twice that of the national average, and in some districts it approaches 80 to 90 percent. In Washington, Muckleshoot children are automatically retained an extra year in the first grade; the Nooksack Indians are automatically placed in slow-learning classes as a matter of policy (*4*). These statistics might be interpreted by some as evidence of a systematic, deliberate, malicious attempt to keep certain classes of people in a subservient, inferior position by depriving them of education. Unfortunately, these statistics, as well as these practices, really represent the results of sincere, calculated efforts on the part of concerned but misguided school systems to upgrade and meet the needs of these children. Though the United States has been chosen to illustrate difficulties met in teaching the linguistically different segments of a population, it would be hard to believe that this problem is unique to that country. No doubt similar statistics might be gathered in almost any country attempting to make its multicultured populations literate in a single national tongue. A discussion of our own problems in teaching linguistically different children should, therefore, be of value to almost any nation addressing itself to this serious and complex problem.

A review of the situation seems to indicate that the chief failure of our efforts at universal public education arises from the fact that we

offer only one monocultural and monolingual curriculum. Though our system is designed to meet the needs of only one group of people, we expect it to serve the needs of various groups. We rationalize our support of this single system on the grounds that it is necessary for a people to become culturally and linguistically united in order to live together in peace, harmony, and prosperity. Whether this premise is valid, several educationally significant consequences follow immediately from the position taken.

1. Such schools will operate from a position that it is the culturally divergent child who is different and, therefore, deficient, and that it is the child who must change to meet the needs or standards of the school system. According to the soundest pedagogical theory, however, we believe that the school is only relevant and effective when it is designed to meet the unique needs of the individual child. Therefore, we are caught in a dilemma between meeting the needs of society in which the child must live and the needs of the child who must live in society. In the past, we have assumed that the child's individual needs will be met best by teaching him to identify with the needs of the larger society in which he lives. We have ample grounds to question such an assumption.

During the first four years of his life the child acquires the sounds, grammar, basic vocabulary, and syntax of whatever language he hears around him. For the bilingual, or the linguistically different child, this will be the language of his parents, a language which is often foreign to the country in which they live. The Navajo child can serve as an illustration of what happens when such a child enters our schools. Of all Navajo children who enter the first grade in the United States 73 percent speak Navajo but little or no English. When these children arrive at school, they find that English is the language in which all subjects are taught and that they are expected to speak this language during the entire school day. It should seem obvious that without the knowledge of English, the child will not benefit from his formal instruction or even be able to communicate it effectively with the teacher; yet, these children are forced to adopt a new language without being given any special assistance or even an explanation of why it is necessary. Such a situation frequently produces deep emotional problems for the child because his native language and the culture it represents are at the core of his self-concept. To face a situation in which the value of his accumulated past experiences is denied will adversely affect the deepest aspect of the child's being.

2. Since the national language is the sole medium of instruction, the school requires the bilingual child to assume the added burden of adequately learning to speak and to understand a new language in a short

period of time. It requires this ability at a time when the child's native language has not yet had time to mature sufficiently to serve as a model for learning a second language. The schools typically do not provide the child with formal direction and instruction or even assist him in making any kind of language transition. They operate on the premise that the child will pick up this new language without formal assistance on the part of the school. Inevitably, the child in such a situation rapidly falls behind in his school work. Very soon the learning situation appears hopeless to him, and he drops out of school. His parents become convinced that the schools offer no meaningful program for their children and cease to place value on formal education and withdraw their support from the school. Thus, illiteracy becomes a way of life in the linguistically different population which is unable to provide its own system of education.

3. A third consequence somewhat more difficult to document, but nonetheless real, has to do with the role of the teacher in inspiring and supporting the child's efforts to learn. To the child, the teacher represents the embodiment of adult maturity, culture, and society. The child learns as much from the example of his teacher as he does from the material the teacher presents. The value of support and encouragement from such a person in a learning situation cannot be overestimated. The bilingual child, however, will find it impossible to identify with a teacher who cannot understand his language or appreciate his values, his culture, and his aspirations.

In our own Southwest, it is widely believed that the bilingual child's native language and culture represent the major impediment to his scholastic progress. A child is actually threatened, shamed, and punished for speaking the language of his home in school. The intention is not to be cruel to the child but to force him to attend to the business of learning English as quickly as possible; the child, however, views the attempt of the school to educate him under these circumstances as an ill-disguised contempt for his own mother tongue and as part of a general social disapproval of himself as a person and the culture he represents. A feeling of rejection dominates his entire relationship with the teacher and the school. As a result, humiliated for his language and values, forced to learn a language and culture unrelated to realities of his life, and rejected by the dominant figure in his educational world, the child withdraws first mentally and then physically from the schools (*4*). Instead of achieving its goal of integrating minorities into the mainstream of a nation, a monolingual, monocultural school system succeeds only in denying whole generations of children an education and condemns them to lives of poverty and despair.

Needed change

When we consider the inadequacy of our present approach to the education of bilingual children, the social implications of large numbers of people condemned to poverty and ignorance for lack of education, and the individual human suffering caused by the personal sense of failure in children, it should seem quite obvious that multilingual and multicultural educations and the means for providing them should be given the highest priority in education today.

Without doubt, such programs will require money, but this will be money spent in the development of the greatest natural resource of any nation—the minds of its people. Such money will reap bountiful fruits in future prosperity and harmony. But perhaps more significantly, it will also effect a major change in national attitudes toward the different languages and cultures found among populations.

The act of adopting a program together with an attitude which recognizes the intrinsic value of every child's language and culture will make it possible for the nation to profit from the diversity of attitudes and values among its people and do much to reduce the fear and suspicion among various segments of the population. It would also solve what is probably the basic problem of education, namely, our inability to accept another who is different. In the United States we still have a long way to go to meet this challenge. Title VII of the Elementary and Secondary Education Act of 1965 was amended in 1967 to include federal provisions for bilingual education. Of an estimated 5 million 88,000 children are reaping the first fruits of a reversal of our fifty-year-old one language policy in public education. A beginning has been made in committing the moral force of the national government to meeting the educational needs of a great segment of our population.

Dialects

What has been said regarding the learning problems of the bilingual child applies with equal validity to the child who enters school speaking a dialect of the national language.

In the United States it is well recognized that the Negro child from a low income home is failing in the schools. The problems centering around his inability to learn to read constitute perhaps the major challenge facing educational theorists and researchers there today. In an effort to analyze this problem, Passow (7) conducted a study of the Washington, D.C. school system. He concludes that the central question that must be answered in developing a model urban school system is "What are the educationally relevant differences which the District's pupils bring

to the classroom and what kinds of varied educational experiences must be provided by the schools to accommodate these differences?" Because of its deeply rooted psychological implications for the individual, its cultural significance, and its immediate and direct bearing on the process of education, it is quite obvious that the major educationally relevant differences children bring to the classroom is that of language.

The failure, then, of the teachers and the school system to recognize the possible interference of the child's different linguistic system, especially in the presence of the teacher's negative attitude toward the child and his language, undoubtedly becomes a major component in the reading difficulties and academic failure which are so prevalent among ghetto children in the United States.

Differences between the speech patterns of the ghetto Negro child and his white middle-class teacher have been described in detail by numerous scholars (*1, 2, 5, 8*). Although many of these differences are concerned chiefly with distributions and patternings which interfere with, but do not preclude communication, others center around basic syntactic differences which effectively block meaningful communication. Labov and Robins (*5*), Goodman (*3*), Modiano (*6*), and Stewart (*8*), have all documented the existence of interference of dialect with the process of learning to read. Labov stresses that the ignorance of standard English rules on the part of speakers of nonstandard English, as well as the ignorance of nonstandard English on the parts of teachers and textbook writers, constitutes an important cause for many reading failures that occur among ghetto children. Weiner and Cromer (*9*) call attention to the need to determine the relationship between language differences and reading problems because a failure to be explicit about these relationships may lead to ambiguities as to whether a particular difficulty is a reading problem, a language problem, or a combination of both.

Goodman (*3*) proposes a relevant hypothesis regarding language and difficulty in learning to read: "The more divergence there is between the dialect of the learner and the dialect of learning, the more difficult will be the task of learning to read." His hypothesis is especially useful because it can be applied to all learners. It implies that when the language of the teacher or other reading material differs to any great degree from the native speech of the learner, some reading difficulties are bound to result.

A plausible case can be made for the position stating that many of the reading difficulties of all linguistically different children can be traced initially to a mismatch between the child's language and that of his teachers and textbooks. Since 1953, studies implying the recommendations of the Unesco report have clearly illustrated the importance

of considering the vernacular in teaching reading in the national language (*6*). It appears that structural knowledge of nonstandard vernaculars and the ways these interfere with learning to speak and to read standard English would be indispensable to a teacher attempting to teach linguistically different children.

Reading program for divergent speakers

The reformation of teaching methods for the ghetto child will be guided by one of three approaches.

1. We can begin by preparing materials for all courses of instruction in the dialect or the language of the child for whom instruction is intended. These may be either entirely new materials embodying the most advanced understanding of methodology and technology, or they may be rewritten materials or translations of existing curriculum materials (*3*). This approach will require either the employment of teachers who are fluent in the language of the student or proper training of experienced teachers.

In favor of this approach we can cite sound pedagogical and psychological principles; and, in the case of the bilingual child, this approach might serve as an excellent focus for international cooperation by making it possible to use existing curriculum materials developed in one nation for children in other countries using the same language. The major problem associated with this alternative will probably derive from the opposition of parents and the speech leaders in the local community who may reject such foreign or dialect materials because they employ a nonprestigious language or who might be concerned about the possibility that foreign texts may contain antinationalistic propaganda. This problem should not be difficult to control, however. Probably the effective implementation of this plan would require considerable reeducation of the community. However, if the program is presented as a basis upon which children can most effectively become integrated into the national culture, it should be acceptable.

Considering this alternative from a slightly different point of view, Baratz (*1*) feels that the practice of first teaching a child to read his own language and then teaching him to read standard English has three advantages: first, the ghetto child will find success in the process of learning to read immediately; second, this approach will provide powerful ego support by giving credence to the child's language system and, therefore, to himself while giving him an opportunity to experience success in school; and third, through the use of transitional readers, an integral part of the program, the child will learn where his language

system and standard English are similar and where they are different and will, therefore, be able to learn standard English with greater ease. Baratz is convinced that the continued failure of reading programs that offer more of the same—more phonics and more word drills—indicates the need for an entirely new orientation toward teaching the inner city child to read.

2. An alternative would be to teach the child to speak the national language before teaching him to read it. While this idea is based on sound pedagogical principles, it is also impractical. The time required to teach children a language which they feel no immediate need to learn would postpone the teaching of reading much too long. Even if this process could somehow be accelerated, we would still face a problem of extinguishing in the school a language which is receiving continual reinforcement in basic communication outside the classroom (*3*).

3. A third option is to allow children to read standard texts but in their own dialects; that is, to accept the language of the learner and make it the medium of learning. This choice would not be relevant in the case of a bilingual child, of course, because the language divergence between his speech and that of the text would be too great; but it may appear realistic in the case of children who speak dialects not too different from the language of the text. Goodman (*3*) considers this approach a practical alternative for teaching children who speak a dialect of the native language. As he sees it, this approach would make no attempt to change the child's language, and no special materials would need to be developed. Instead, children would be urged to read the way they speak. Goodman argues from the premise that language growth must be outward from the native dialect and expand eventually to encompass the socially preferred forms while retaining its native roots. In this way the child expands his language as he expands his outlook, not rejecting his own culture but coming to see it in a broader setting. Eventually, the child achieves a flexibility of language which makes it possible for him to communicate in many different settings and at many different levels.

The outcomes ascribed to this approach leave little to be desired, but it is difficult to understand how the teacher or the school system can avoid conveying a sense of rejection of a child's language in the absence of any formal recognition of its legitimacy in the texts he uses. It seems that unless culturally relevant literature written in the child's dialect is used, all that could be communicated is a spirit of tolerance regarding his dialect. The child would still see the school and the teacher as alien to his own world, and he would still be forced ultimately

to choose between self-identity and social acceptance with all the implications described earlier.

Second, it would appear that not enough recognition is given to grammatical and syntactic differences between the child's dialect and the language of the texts he reads. Merely allowing a child to pronounce words in the phonemic pattern of his dialect will not provide him with language patterns that are familiar or meaningful to him. His dialect probably differs from the textbook in its use of inflectual endings, vocabulary, and usage as well as in its phonemes, intonation, and rhythm. Surely something more than a permissive attitude toward his pronunciation is required to provide effective reading instruction to such a child.

On the practical instructional level, we find a third difficulty with this approach. It would be quite difficult to identify specific criteria for reading performance in a setting where the child is allowed to skip words, change or omit endings, and alter pronunciation in accordance with rules which obtain in one language as he is attempting to read in another. For example, it would be difficult to evaluate the sentence "I asked if he did it" when a child reads it as "I aks did he do it?" or "I don't have any" when the child reads "I don't got none." The mental gymnastics involved in such reading amount to a spontaneous translation of the text into the vernacular of the child. If he is able to do this transformation effectively and correctly, he should be able to read the text as it was written.

If this alternative were modified in various ways to obviate the difficulties cited, it would probably be much like other approaches which have been described. If it were not so modified, there is little reason to believe it should be particularly effective.

Conclusion

Persuasive evidence exists that the problems facing the linguistically divergent child in learning to read in a monocultured and monolinguistic school system can be explained in a practical sense in terms of the cognitive, psychological, and motivational interference associated with his language background. It has been suggested that the basic problem of the bilingual child is not significantly different from that of the dialect speaking child in most respects. A review of solutions to the problems seems to lead to the conclusion that effective education as well as effective reading instruction for these children requires that all instruction be given in their native speech and presented in such ways that each child recognizes that his cultural uniqueness is prized

as an asset to the society of which he is a part. The national language and culture should be taught after sufficient growth and facility in the native language has been acquired to enable it to serve as a basis for foreign language development. Only in this way can the educational system hope to achieve its goal of integrating national society and developing the human potential of the greatest natural asset of a country—its people.

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Comparative Reading: A Fourteen Nation Study

DURING the past three years a team of specialists in fourteen countries has conducted the first study in this new field of investigation into reading—comparative reading. This method of research is based on the proposition that by making comparisons between the reading behaviors of people with different cultures and languages a better understanding of the fundamental psycholinguistic processes of reading and writing and the manner in which they are learned will be achieved.

This research attempts to draw on the living laboratory of languages and cultures by sampling countries with contrasting linguistic and educational backgrounds. The result is not a mere collection of readings of previously published articles, nor is it a symposium of isolated contributions. Comparative reading is the outcome of the cooperative work of a team of nineteen writers in a deliberately planned cross-national study of behavior in learning and utilizing the skills of reading and writing (*4*).

Fourteen nations were deliberately selected to represent different cultural, educational, and linguistic phenomena. These were Argentina, Denmark, Finland, France, Germany, Great Britain, Hong Kong, Israel, India, Japan, Norway, the Soviet Union, Sweden, and the United States. For each nation, experts were selected to write a report on reading behavior in that country. A copy of an earlier paper (*3*) on comparative reading was given to each of the national authors. This procedure insured that everyone would work toward a common set of goals. In addition, an outline of the probable form of the final report was sent to each national author to help him see how his part would fit into the total project; also, some guidelines for preparing a national report were sent to each author. These guidelines pointed out that the future readers of *Comparative Reading* would wish to compare one national report with another and that, therefore, it would be helpful if each author would bear this fact in mind. The guidelines conclude as follows:

> The above list is only intended as a guide to some of the variables which have been mentioned by people interested in comparing reading in different countries. There may be other more important problems which must be understood in the study of the reading of a particular country.

This final instruction emphasizes the open-endedness of the inquiry because it was a deliberate aim to leave room for spontaneous responses that would indicate the varying cultural priorities in different countries.

The analysis of all the resulting data has been a difficult task because there had been no previous inquiry to provide any signposts within this particular field of investigation. However, one of Bereday's principles (*1*) for comparative education has guided the work of analysis: ". . . never-ceasing watchfulness by the observer to control his own cultural and personal biases." Nevertheless, one must accept that, despite all precautions, this type of analysis cannot fail to be influenced by the analyst's theoretical standpoint, and this writer assumes full responsibility for any distortions of the national data that may have occurred in the course of the preparation of Part One of the report.

However, an important additional precaution has been taken in the final published report. All of the original data from the fourteen countries are published in full so that others may make their own interpretations.

The full report consists of a book of 600 pages. In this paper one topic of popular interest has been selected as an example of the insight provided by the comparative method of investigating reading.

Methods of instruction in reading

Teachers' beliefs and attitudes

Gray (*5*) in his pioneering international survey of reading and writing finds it difficult to classify methods of instruction because of disagreement among educators about the way in which they used the technical terminology of reading instruction. The comparative reading project has found similar confusions. But it has also uncovered a much more serious source of error in investigating instructional methods. The method that teachers claim to be using often does not relate well to what is actually being done in the classroom. Much more important are the teachers' true beliefs and attitudes regarding instructional methods.

For example, the report from India recounts some innovations in methods of instruction that are being attempted. However, these are often changes of method in name only. A teacher may claim she is using "the whole-word method" or "the sentence method" with the textbooks

that also are described by these technical terms, but actually by rote learning she may continue the conventional emphasis on individual characters and their phonic significance. Two reasons that might account for this development are 1) a lack of training in global methods and 2) the conservative attitude of teachers. Similarly, when the global method was introduced into schools in Argentina, many teachers taught it along with the analytic-synthetic system because they believed it would forestall failures and would complement the method favored by their supervisors.

Research evidence is actually cited in the report on Israel of this effect of teachers' attitudes toward methods. One study discovered that teachers who had not adhered to the precepts of the accepted unstructured method but had devoted time to systematic teaching obtained better results. After describing the diagnostic reading approach and individualized methods the author of the report on Sweden remarks that it will take time to get all Swedish teachers to adopt them in their classes. Research cited in the report on Britain finds that British teachers are conservative in many of their attitudes and that there may be only a small proportion (perhaps 20 percent) of teachers who are naturally inclined to be innovators. Dottrens and Margairaz (*2*) state that two of the four reasons for the persistent use of the synthetic method by French teachers are 1) teachers' rejections of the findings of child psychologists in regard to the reading process and 2) the general passivity of elementary teachers and educational authorities toward innovations.

Language and method

Gray believes that a "vital factor that influences the choice of methods is the language involved," and that "in selecting methods to use in teaching reading, the linguistic characteristics of the language used should be studied carefully."

Lee (*6*) conducted an international survey to specifically answer the question "whether the way in which a language is spelt had been taken account of in deciding upon methods of instruction or whether it had shaped these methods." His findings are contrary to Gray's belief:

> Among the most regularly spelt are Finnish and Turkish: Finland favours a synthetic method which Turkey has abandoned. Spanish and the Slavonic languages are also fairly regularly spelt, but while the Slavonic countries have adopted an analytic-synthetic (but mainly synthetic) approach to reading, no unity of method is apparent in the Spanish-speaking world. . . . It is unnecessary to continue. All these languages are more regularly spelt than English, and it is clear that both analysis and synthesis play a part at

> some stage or other in the methods used to teach the reading of each. Yet a close association between methods and "regularity" does not exist.

The comparative reading project tends to support Lee's conclusions. There seems to be no connection between linguistic characteristics and methods of reading instruction.

A careful analysis of all the international data reveals three reasons why there is so little relationship between methods of teaching and the features of the written language:

1. The existence of dialect differences within one language area may nullify generalizations about grapheme-phoneme relations in its writing system.
2. The alphabetic writing system may not be a code for phonemes only.
3. Differences in teaching methods may be based on educational or psychological considerations that outweigh concerns about the nature of the writing system.

On the first point, the failure to consider dialect differences within a country has caused the problem of grapheme-phoneme relationship to be oversimplified. This factor is strikingly revealed in the report on Argentina. The linguistic map of that country is a graphic representation of the fact that one cannot validly generalize about American Spanish nor the Spanish language. Even in Spanish spoken by educated people in Argentina, there is a one-to-one relationship between phonemes and graphemes in only nine cases. When one considers the exceedingly complex dialectal differences in Argentina, the disparities between the spoken and the written language once and for all burst the bubble of the popular myth of the "perfect regularity" of grapheme-phoneme relations in Spanish.

The second reason why a simple connection between a language writing system and the methods used to teach reading must be questioned is that a writing system may signal other aspects of language besides its sounds. Lefevre (7) points out this matter in the case of the English alphabet.

> Word-form changes, prefixes, suffixes, and other systematic clues to language structure are generally spelled quite regularly without regard to differences in sound; this regularity corresponding to important structural signals probably compensates for irregular spellings at the phonemic level.

If the alphabetic writing system is not merely a code for phonemes, then the assumption that synthetic phonics is more appropriate for written languages that code phonemes regularly than for those that do not is clearly an oversimplification of the problem.

The third reason for doubting this assumption is that methods of reading instructions are not determined solely by linguistic considerations. Other educational aims and perceived psychological needs of pupils may be much more important considerations in the teacher's selection of methods. Gray recognizes this fact when he discusses the "advantages and limitations" of those methods that insist on large chunks of language in early reading instruction; e.g., stories, sentences, or words rather than isolated letters or other symbols. Gray says that "they apply to all languages." It is significant that he considers such approaches to have the same benefits and drawbacks across language or writing system differences because the essence of these methods is their emphasis on the linguistic meaningfulness of the written language. The important point for such methods is not so much that the chunk should be larger than a single letter in writing and a single phoneme in utterance. The size of the chunk is not the guiding principle. The aim in these methods is to ensure that the language represented in the samples of print or writing that are used in teaching literacy will be immediately recognized by the learner as meaningful. Therefore, the characteristics of the writing system simply do not matter as the essential purpose of those methods which provide larger chunks of language to young readers is met.

The national reports on comparative reading provide several examples of this similarity of educational aims underlying the preference for chunking methods. In England, more and more attention has been paid to global methods since they are deemed to be more meaningful to young beginners. In Denmark, top priority has been given to making sure that the reading situation from the start is a realistic and meaningful one for the child. These two examples happen to come from countries whose languages have notably irregular or complex orthographies. It may be suspected, therefore, that their enthusiasm for nonphonic methods is a rationalization for their avoidance of synthetic approaches inappropriate to their writing systems. However, on the other hand, their emphasis on reading that is realistic and meaningful for the child is not isolated from other aspects of the educational environment. On the contrary, the meaningful chunking methods preferred in these countries speak well of their overall educational climate. In the report on Great Britain, a direct connection is shown between the adoption of this type of instruction and the general movement toward child-centered education. Similarly, in Denmark, the overall development of the child is the objective rather than one isolated aspect such as reading. Therefore, it seems more probable that this preference for a meaningful chunking method of teaching reading is related to general educational aims that attempt to take account of what are perceived to be the psychological needs of young children.

Yet there are some extreme differences between languages that seem more likely to influence the teacher's choice of instructional method; for example, the logographs of Chinese and the syllable characters of the Japanese Kana script, as contrasted with phoneme symbols of alphabets. The reports on Hong Kong and Japan may be quite surprising to reading specialists in other countries who have not previously compared their writing systems with the Chinese and Japanese systems. In particular, specialists may be surprised to learn that meaningful chunking methods of instruction are not forced on Japanese and Chinese reading teachers simply because their languages are written in large chunks that code directly to meaningful concepts. A kind of atomistic decoding method can be and is used by some teachers in Hong Kong and Japan. Failure to recognize this potentiality is probably the result of the ethnocentricity that pervades the professional literature on reading. Because theory and research on reading developed earliest in countries with alphabetic writing systems (particularly in the United States), nonalphabetic systems have been given scant attention. The few cross-national investigations of reading that have been conducted have focused on the regularity of grapheme-phoneme relations, probably because they have been inspired by this obvious feature of alphabetic writing systems. Thus, it is often assumed that the way in which a teacher teaches reading is determined by this feature.

What one learns from the Japanese and Hong Kong reports is that the grapheme-phoneme dimensions of difference between alphabetic writing systems is relatively local and that there is a more universal dimension that does provide a worldwide continuum for classifying differences in methods of instruction in reading. Atomistic decoding and meaningful chunking represent its two extremes. Whether one is dealing with letters that represent phonemes, with a syllabary that signals the relevant sound group, or with logographs that signify morphemic units, the same options are available. One can begin by emphasizing the atoms of written language for instance, either the separate letters of written words in English or the radicals of Chinese logographs. Or one can put the emphasis on the larger chunks of written language that convey linguistic meaning. In other words, the various emphases are the *mechanics* of the decoding task versus its *communicative function.*

Conclusion

This brief summary of only one of the many aspects of learning to read studied in the *Comparative Reading* project shows how fruitful this type of cross-cultural and cross-language research on reading may be. It is

anticipated that the publication of the report will stimulate many more comparative reading studies which will shed further light on the underlying causes of differences in the teaching and learning of literacy skills.

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Variables Acting Upon the Reading Process

AS A RESULT of the comparative study carried out by researchers from fourteen nations, Downing (*10*) describes his model of beginning reading by synthesizing into three main groups the numerous variables acting upon the cognitive process: expectations due to environmental conditions, linguistic stimulations, and alien factors in the individual and in the environment comprising the type of schooling. In this paper these variables will be analyzed for their influences on learning to read in Argentina.

Environmental expectations

Combination of factors in school performance

The individual, possessor of unique characteristics, integrates successively the family environment where he undergoes his first experiences and the school environment; these experiences shape his responses or needs in accordance with his family's social status in a concrete society and under conditions which are products of the orientation of educational systems imposed by political forces in that society and with which the school will be endowed. Performance is thus the result of a combination of factors, many of which originate beyond the individual and even his family and school.

Historical and economical conditions in the variability of expectations

In 1955, Wall (*20*) said, "It seems that the enthusiasm for popular education is not so keen as before and many children do not receive the same stimulations from their environment with regard to reading." This remark is valid for Argentina if the advances in popular education from the eighth decade of the past century until the third decade of the present one are compared with the subsequent stagnation (*2*). During almost one century, on account of the influence of events which affected the relationship between the big industrial powers and the countries that came to depend on them, Argentina deviated from the destiny which had been

set by the politicians who were leaders in popular literacy. This country, in a downward progression, came to be placed among the two-thirds of the world population considered "poor" amidst a development crisis which gradually widened the gap separating it from the "rich" countries (*1*). For a variety of reasons, the general revenues from those poor countries have declined in such a way that the educational budgets, even if they were increased to the essential 25 percent (from which they are now quite distant), would be too meager to maintain a comparatively efficient system.

If it is true that the "dynamics or stagnation of the social economic media" is the fundamental factor of scholarship performance and that the school itself, in order to act as a dynamic evolutionary agent, must be nourished in a society that evolves and grows, it is easily understood how scholarship will languish in declining countries which neither promote education nor have the capacity to use its products.

A comparative study can reveal noticeable differences among countries where illiteracy has practically disappeared and others in which up to 80 percent of the population cannot read or write; in the former, children attend school nine or ten years while in the latter, they attend three years or fewer on the average. Furthermore, epidemiologic studies show that because of the way in which the latter countries distribute their public health and educational budgets, they have a situation in which malnutrition and illness coincide with illiteracy and school failure.

In this report we are concerned with this last effect, particularly prevalent in the first grade of the public schools where 49 percent of the children in Guatemala, 52 percent in Brazil, and 25 percent in Argentina cannot decode and understand the textbooks supplied for this level. Within each country, the comparison registers differences between rich and poor provinces; in Argentina, for example, the repetition of the first grade reaches 40 percent in Santiago del Estero and only 9 percent in the capital city (*12*).

However, these data do not support the expectations of the public and the teachers. Surveys show that parents consider their children's education a first priority even under the most unfavorable conditions. Also, teachers rank reading instruction first among their professional interests and seek basic information which will help them reduce the present failure rate.

Linguistic influences

It could be said that the language variable appears to be the most significant influence revealed by the study on comparative reading (*9*). During the initial stages of beginning reading there is the problem of the

spoken language, in its external and internal forms, corresponding with the written language. External spoken language is highly developed in the six-year-old child while internal language is just beginning to be developed and associated to intellectual acts through abstract thought. Written language is known only to children who grow up in an environment full of printed or handwritten stimulations (5).

Incompatibilities between spoken and written language

Setting aside the differences recognized by Vizgotzky between spoken and written language, one of which is more linked to immediate and practical intelligence and the other one to abstract intelligence, three forms of incompatibility can be recognized (6): 1) in the graphematic phonetic regularity; 2) between the structural unit of speech in which the articulative analysis is made in the syllable, and the written material, in which the visual analysis depends upon the word; and 3) among the child's speech and the language of the teacher and the textbooks.

These incompatibilities differ for each language, although the third one is more crucial in bilingual countries or in countries with dialectal zones where so-called "subcultures" still exist. These differences exert influence on learning to read, both on the process which involves decoding, and on comprehension, which is one of the objectives of reading.

Variations in speech in Argentina

On account of historic reasons linked to the Spanish conquest in the sixteenth century and to the immigration policy in the nineteenth century, variants appear in the American Spanish spoken in Argentina; according to research carried out by Battini (3) they have their origins in five linguistic categories. Generally, the variants refer to: 1. Structure, as shown in *voseo* with its numerous morphosyntactical modifications *(vos sabés, vos sos, vos querés,* or *vos queris, me hableron de vos, no quiero que vos lo cuentes,* or . . . *que vos lo contés*) extending over the whole country and penetrating all social classes. 2. Pronunciation of vowels, mainly in the formation of a diphthong with vowels in hiatus (pión for *peón,* maistro for *maestro,* pasíe for *pasée*), and of the consonants, as appears in *seseo* and *yeísmo.* The first variant consists of equalizing *s, c, z* as the predorsal voiceless *s* with different behaviors of /s/ (aspiration before the consonants and the vowels in the "provincialism," e.g., cohta for *costa* or vamoh a ver for *vamos a ver*). The *yeísmo* consists of the equalization of the /ɪ/ and the /ǰ/ under two forms: the fricative palatal sound voiced in the Cuyo and Center region and the other one, the prepalatal fricative or "burred" *y* (*y rehilada*) pronounced in the Río de la Plata, North West, and South (as the French *j* or the Italian *g*) (7).

Moreover, in the popular language of the urban or rural zones the loss of consonants occurs, such as the final *s* and *d* and others such as *n* (inegable for *innegable*), *g* (inorante for *ignorante*), and *c* (dotor for *doctor*).

These zonal variations stress the irregularity in phoneme-grapheme correspondences which are not so perfect in Spanish as was formerly believed since there are only nine symbols left without ambiguity in their relationship with sounds (*4*). (See Figure 1 which has been prepared with the assistance of Ana Maria Barrenechea.)

The variations in pronunciation are examples of the first two incompatibilities. In decoding (reading) and perhaps with greater emphasis on the encoding that takes place in the act of writing, the child in each case deals with four signs that he must decipher or mentally select, a condition that leads to cognitive confusion believed to occur by Vernon (*19*) and Downing (*11*). In addition, the mentioned variants interfere with the transference act which is essential for true reading. For example, if the child pronounces *pion* or *maistro* while seeing the written word *peón* and *maestro,* he will hesitate to read /e/ when in other words he finds the written *e*. With regard to the second incompatibility, the same example may be used to observe that the articulation of *maistro* takes place in two voice emissions, while in the visual analysis of the same word the child will find three of them according to the rules by which Spanish orthography tries to adapt writing to pronunciation and which in this case are not the ones he uses.

The third incompatibility is influenced by structure modifications which rarely appear in the written language and which are in tune with the structure of the original Spanish. For some time now teachers have been using the *voseo* more freely in talking with students, but that variant does not appear in school textbooks. Furthermore, the vocabulary which presents many variations from region to region and from neighborhood to neighborhood does not appear in textbooks that are usually written in the "cultured" language of the capital city (*6, 7*).

In order to verify the hypothesis that these three incompatibilities interfere with learning, Scollo (*21*) has undertaken the study of them. Thus far, she has studied motivated spontaneous writing and dictations from fourth and sixth grade pupils who live in a marginal neighborhood in the city of La Plata. Most of the children live in shanty towns and come from families that emigrated from Tucumán and El Chaco. Letters from semiliterate adults were also used.

The spelling mistakes are unexpectedly numerous for the fourth and sixth grades, but in most cases they are due to the fact that the individuals write in the same way they speak. The children use different graphemes which may represent the same phoneme sometimes following the

rhythm of their spoken language and at other times depending on popular variants in vocabulary and pronunciation. The classification of mistakes shows that most of them are examples of the first incompatibility and the remainder are examples of the second and third incompatibilities.

We believe that by improving the techniques in comparative research involving two or more linguistic regions in this country, it should be possible to verify the hypothesis and determine whether the influence of linguistic factors on the cognitive process is interacting with other factors in the social environment which are mainly responsible for school and particularly reading failure. This possible interaction could be studied further through the results of an early stimulation program that achieved a certain cultural leveling of groups in those regions, together with a prereading program that applied some new insights into the cognitive process.

Alien factors

There is experimental evidence (*22*) which shows that in Argentina the influence of the school on environmental conditions is not great. Schools exert little influence because of their material poverty; the poor interpersonal relationships that exist among supervisors, directors, teachers, and the few social workers and psychologists; the lack of adequate training of school personnel; and methods of grouping and teaching children to read.

In some provinces children are classified in accordance with the results of test scores achieved on a readiness test that fails to measure integrative learning (*16*). Results of a study published in Brazil in 1971 (*17*) show that the predictive value of those tests is zero. The results also corroborate other experiences regarding the negative attitudes of teachers who work with groups doomed to fail according to those predictions. In several instances the abolition of these antidemocratic practices has been proposed.

The old controversy between the advocates of phonic and global methods has been studied in recent years in controlled experiments for Spanish in Uruguay and Portuguese in Brazil. The former showed that neither method is better than the other and that neither method guarantees success. In Brazil (*15*) the results favor methods which make use of phonic resources and confirm conclusions by Winch, Bloomer, Olson, and Chall.

In Guillaume's old classification (*4*) of synthetic and analytical methods, learning was split into two parts: codification and immediate comprehension. Perceptions were also dichotomized although sometimes shared; the very ancient alphabetic or literal system required visual perception, as did the pure modern global ones, while the old phonetic sys-

tem emphasized auditive perception. Users of the old alphabetic system were not interested in the analysis and synthesis of intellectual acts, and advocates of the phonetic system were only partially interested. On the other hand, followers of the more dogmatic global system stressed insightful improvisation.

The new hypotheses on the cognitive processes of reading acknowledge the development of a learning sequence progressing through several integrative stages. In the first stage the auditive perceptual activity prevails, correlating to visual perception and progressively being accompanied by a form of reasoning which is specifically significant to reading. This formulation not only suggests integration of phonic resources, particularly in prereading, but also exposes its limitations. These limitations appear not only in such nonphonetic languages as English but also in others such as Spanish, the incompatibilities of which we have to demonstrate.

Summary

Latin America has economic, social, political, and educational problems which are of equal concern to all of her countries despite their cultural individualities. Particularly, Latin America has a common language which is more unified than the other two languages spoken on the continent (*16*); although there are linguistic zones which in turn are not uniform, there is also a tendency to the unification of its variants (*23*). Efforts are being made in different Spanish speaking countries to obviate the linguistic problems in reading (*8*). Modern comparative reading science may serve to coordinate, unify, and renew such efforts.

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The Influence of Teaching on Reading Achievement

HISTORICALLY, the educational progress of pupils has passed through many phases. At one time when there was little in the way of formal schooling, and even less in the way of textbooks, learning was mainly an individualized process with the emphasis on practical skills to be taught as needed.

With increasing numbers of pupils attending educational institutions the programmes became more highly organized. In some countries the graded system was adopted while others used forms, levels, or similar types of designation to indicate segments of the educational system. Based on the assumption that knowledge could be organized into sequential units, pupils were expected to learn a prescribed amount of content and to master skills of increasing difficulty in each curricular area during a specified time. In other words, pupils were assigned to classes according to their achievements on the continuum of established standards. Generally, pupils were not allowed to advance in one subject until they had achieved an adequate level of success in all other prescribed subjects, and the acceleration of gifted pupils often resulted in skipping material in all areas of study. The validity of both nonpromotion and double promotion is questionable in terms of the sequential learning implicit in the graded system.

For many years teachers typically used textbooks; that is, pupils assigned to a particular class used a common book which presented the basic knowledge to be mastered in each subject. In reading, a basic book presented largely narrative material around which specific skills of reading were developed. Varying amounts and kinds of supplementary teaching aids were available, often as a result of the teacher's resourcefulness. The main approach to teaching reading was usually similar throughout a country so that differences in programmes were attributable more to the professional competency of the teachers than to the method of instruction.

Education has had its critics through the ages. A survey of the literature reveals that for one hundred years serious questions have been raised

about the effects of the organizational patterns on the achievement of an individual within the system. Research during the 1940s and 1950s indicates that pupils do not learn significantly more by repeating a year's study and that they frequently become discouraged and disinterested. Moreover, pupils who are rewarded with praise for their accomplishments progress better through school than do those who do not receive praise. The implications from research and practice are that grouping based on ability or achievement does not necessarily affect progress, especially where there is no differentiated or adapted instruction. Later, there was a move to extend the bases for promotion to include, in addition to achievement, factors such as the social, emotional, and physical development and the intellectual potential of the child. Difficulties encountered in evaluating a child's progress resulted in almost automatic promotion without the necessary accompanying changes in instruction to provide for the goal of continuous progress.

Procedural Arrangements

That educators should provide, as far as possible, for the individual needs of the child is virtually unchallenged. And yet the multiplicity of ways in which programmes attempt to achieve this goal is often bewildering. The emphasis today is changing from requiring pupils to achieve uniform standards at particular levels to that of continuous growth throughout the educational system. Regardless of the label for the procedural arrangements, providing for individual differences has generally been attempted through modification in the organization of classes, materials, and methods of instruction or combinations of these factors. The research evidence is not clear on the effect of nongraded classes on achievement. One study shows a significant gain for nongraded classes compared to graded classes in the first year and a half but no significant difference at the end of three years (*4*). A summary reveals that six out of ten comparisons favour pupils in nongraded classes over graded classes, with pupils of lower intelligence benefiting more from the nongraded type of organization (*1*).

The self-contained classroom places a heavier curriculum load on each teacher and sets restrictions on the flexibility of groupings. Teaching teams provide the potential for adapting curriculum and instruction to the differing needs of pupils. Since teaching styles differ as well as learning styles, perhaps the intermediate step of cooperative teaching (planning together) is an appropriate way to introduce a more flexible and efficient learning environment. Teachers who are comfortable in the

teacher-group situations will likely choose an increasing amount of team work if given the opportunity.

The organization of a school system, a school, or an individual classroom can facilitate or hinder the implementation of a particular approach; but the quality of learning and the extent to which the individual reaches his potential will depend even more on the quality of instruction, teaching style, and teacher-pupil relationships.

Recent trends indicate an increasing awareness among educators to provide for individual needs in more specific ways: identifying the strengths and weaknesses of each pupil, using or adapting different instructional materials for different pupils, and developing various methods for different pupils.

Diagnosis

Many new questions are being raised about the best way to make pupils independent learners. As a result, instructional goals in reading are reflecting an increasing emphasis on the specific kinds of behaviour required to learn to read and to apply the skills of reading in a variety of situations.

Testing has traditionally been associated with measuring achievement. Formal reading tests are useful for providing information on a pupil in comparison with a normative group and on his placement on the skills continuum if such a sequence does, in fact, exist. In addition, informal, diagnostic tests should be used to provide much more frequent and specific information needed for continuous progress. Some of the important areas to be examined diagnostically include word recognition, comprehension, oral reading, rates of reading, study skills, application of reading skills to a variety of reading matter, and the often neglected area of reading interests, preferences, and habits.

Diagnostic testing is determining whether the learner has reached the criteria of mastery and application of a specific reading skill. To improve efficiency in learning, certain skills should be evaluated prior to instruction to find out whether the pupils have already met the criteria through previous instruction or incidental learning. The pretesting procedure is possible, for example, in word recognition and study skills. Those who have demonstrated compentencies should proceed to more stimulating work to avoid unnecessary repetition. Instruction should be provided to pupils with an identified weakness, and a posttest would reveal whether mastery has resulted from instruction.

Identifying the strengths and weaknesses of each pupil provides a basis for making professional decisions on the most appropriate kinds of materials and methods of instruction.

Varying materials

Because of the diversity of circumstances it is difficult to generalize about the materials of instruction in reading to an international audience. This International Book Year we are more conscious than ever of the disparity of the quantity and quality of books available in schools around the world. Important among the goals of the Unesco project is the attempt to make available more and better materials. On the one extreme, in the United States, massive efforts are being made to improve literacy. Educators are required to make selections from a confusing array of new materials. On the other extreme, many schools throughout the rest of the world have no opportunities for selection, and so the children read whatever books are available. While solving the practical problem of the acquisition of a sufficient number of books to teach reading, one must also become involved in the more professional problems of developing and selecting materials which are suited to the capabilities and social setting of the learner.

Materials for teaching reading are the tools of instruction and, as such, should not be evaluated by the same criteria nor used in the same way as books for personal reading. Some of the newer sets of materials consist of recovered and relabeled familiar items which may be useful. Some innovative and imaginative materials will undoubtedly prove useful for certain kinds of learners, though not necessarily for all pupils. Some materials provide the tools for unique approaches to teaching reading while other materials provide methods to accomplish similar goals.

A recent development in publishing has been the packaging into kits of a set of related teaching materials. While a collection of materials offers more diversity than the single textbook concept, it may, nevertheless, provide an even more rigid programme if the teacher uses the preselected instructional materials in their entirety, while adapting and extending them less because the packaging implies that the programme is "complete."

Instructional materials can often be used in different ways ranging from preplanned sequences of teacher-directed group lessons to independent and individual study activities. The teacher may greatly influence the kinds of learning experiences pupils have, not only by the selection of materials but by the learning tasks suggested to the pupils, by the expectations of what they should and can do with the materials, and by the climate created in the classroom for their use. The development of technological devices for instructing and recording tasks permits the modification of materials for self-directed learning which hitherto was not possible.

Selection is a time-consuming and responsible function of the role of a teacher. This function is one of increasing importance because of greater involvement in curriculum development by teachers and the availability of more materials than previously existed. Knowledge of available materials and skill in evaluating the materials, the learner, and the context in which they will meet are becoming increasingly important professional skills.

Adapting instruction

The main approach to teaching reading is often implicit in the kind of materials selected for instruction. For this reason instructional decisions should be based not on the objectives of a prepared reading programme but rather on knowledge of the reading process and the needs of the pupils.

The pursuit of the answer to the question "What is the most effective method of teaching reading?" was intensified during the last decade. Comparative studies among approaches to teaching reading were carried on in many countries and on a particularly large scale in the United States. The influence of methods of instruction on achievement is often difficult to ascertain for a number of reasons: difficulty is encountered in controlling the related variables in large studies, the effect of motivation on achievement is difficult to assess, comprehensive longitudinal studies are nonexistent, and rarely is a single approach to teaching reading used exclusively in a classroom. Consequently, the findings of studies do not consistently point to the superiority of one method over others.

Recent studies are suggesting important implications for instruction in reading, regardless of the main approach. A greater emphasis is needed on the application of reading skills than has generally been the case in the past. Soliciting verbal explanations of the application of skills or principles by individual pupils strengthens the use of skills in independent reading activities (*3*). Admittedly a time-consuming process, it is, nevertheless, critical that pupils demonstrate their understanding by explaining the application of new skills on several occasions. Supplemental programmes of recreational reading contribute positively to reading achievement, emphasizing the application of reading skill to personal reading (*5*). Nondirected reading on a self-selected informational topic has similarly been demonstrated to promote reading progress (*2*).

Acknowledging differences among learners, differences in goals of instruction, and differences in materials, then it is also important to recognize differences among teachers in professional competencies and preferred teaching style which has a demonstrated effect on achievement.

The personality of the teacher influences the climate of the classroom. If the relationship between the teacher and the pupil is positive and accepting, then the chances are greater that the child will gain an increased sense of self-confidence, self-worth, and independence than if the attitude is critical and rejecting. Teaching must become secondary to facilitating learning through increasing motivation and curiosity. Research indicates that the teacher's expectations of a pupil's long-range capacities affect his progress (*6*). Similarly, parental expectations and aspirations also affect achievement (*7*).

One thing is certain: no one method of teaching reading will prove equally effective for all pupils in all schools by all teachers. However, adaptations of instruction which provide increased opportunities for pupils to ask questions, to explain the application of reading skills, and to engage in sustained reading on a self-selected topic should contribute to better reading achievement.

Conclusion

A beginning teacher is concerned with the complexity of choices in planning the reading programme; an experienced teacher is excited by any alternative that may be manipulated for variation. An effective teacher is aware of the differences among materials, methods, and learners; a creative teacher uses ingenuity and inventiveness to adapt the materials and methods of instruction to each learner.

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THE TEACHING OF READING

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Promoting Reading Ability at All Levels

The roles of home and school

BEFORE my brother was born, my mother ate gristle and read a complete set of Shakespeare, hoping to make her baby physically strong and a person of taste and competence in reading. By the time I came along, the last in the family, she was thoroughly tired of gristle and had given it up completely; and it was more important to read seed catalogs and garden books than it was to take a fourth whirl at the Bard of Avon. However, there must have been some residue in her system, for all of us turned out to be literate, and the two of us who remain are clearly more gristle than fat.

A young friend of mine had a fine baby boy this summer. Her preparation was somewhat different. More is known about nutrition now, and my friend adhered to the diet as strictly as my mother had to gristle. Her substitute for Shakespeare was a library of instruction on baby care and child development. Prior to the great event, my friend exercised to ease the birth so that confidence replaced apprehension, and resentment did not blight the son's welcome.

I suspect that the attitudes of these two women were every bit as important as the preparations. Keen interest in life and intelligent preparation for it would not stop with the birth. Rather, this attitude would form the environment which would surround the child and foster his health and intellectual development. The home that welcomes the child, surrounds him with a variety of invitations to wonder and to explore —language in the company of action—and provides all kinds of reading material, is more and more recognized to be the home of a good reader.

In the same manner, the teacher who welcomes the child, surrounds him with inviting tasks, involves language with physical activities, and creates a mode of classroom life in which literature and functional reading materials play a significant role, is more and more recognized as the teacher of a good reader. Oddly enough, the teacher may be said to have more homework to do than the parent. For the success of the reading

program depends upon its suitability to the individual learner. There are questions to be answered and curricular accommodations to be made. In what respects and to what extent has the home equipped him with language-accompanied experiences, self-understanding, self-confidence, work habits, social skills, and exposure to verbal expression of thought processes? What does he enjoy? What interests does he bring from home? What does he need to learn? What are his strategies for learning? What does he need to learn about learning? What are the priorities?

World practices

When I was a child, I attended one of the best school systems of that time in the United States. Not many teachers were asking the questions I have just mentioned, yet they were excellent teachers. Each parent purchased a primer for his child to take to school. Everybody had lessons out of the primer. Children who did not survive the book repeated the grade. When I was in the fourth grade, another girl in the class, whom I had never encountered before, had reached the advanced age of seventeen. I remember having been awed by her mature appearance. It gave her a special status in a class of midgets. But she chose that year to withdraw from irrelevant academic endeavors in favor of matrimony.

In that school the first graders were taught to read whole sentences right in the book and ultimately to recognize the individual words within them. I am not sure when in autumn the leaves began to fall, but I remember an experience chart which said, "The leaves are falling." Each child had brought a leaf to school that day to paste above this declaration. Having memorized sentences like this from charts and in the primer, and having recited them at home and school, I had a panicky feeling of guilt and discomfort that somehow this wasn't reading and that some day I would be found out. How I overcame this handicap I do not know, but apparently the seventeen-year-old never got the message.

In India in the early 1960s, it was commonplace for 40 percent of the children who came to school and attended class in the first standard (first grade) to drop out and for the average child to repeat the first standard before continuing to the second. The approach to reading in India was similar to that in many other countries. The whole class was taught to say the sounds and write the letters of the alphabet. After these could be written from dictation, the teacher would read a sentence in the book and the children would repeat it in unison. For children who could not remember the letter-sound correspondences or who had never really mastered them, the reading was sheer recall of

the teacher's words. Many children failed to keep up with their classmates. Parents needed the children to help at home or in the field more than they needed to pay for an education that did not "take" and that appeared to have no relevance to the demands of life in India. Often, even the literacy developed in school was lost for want of reading materials.

In England and Scotland a common though not universal practice requires the child to take his book home so that his parents can help him memorize the next lesson. The teacher hears the recitation the next day to see how well the parents did. As not all parents in India are literate, a reading program which assumes memorization of the book does not work so well.

In the 1960s in the United States, we were proud of our systematic reading programs which started with whole stories, whole sentences, and whole words and which taught the letter-sound correspondences for consonants in the first year program and the letter-sound correspondences for vowels in the second year program. Some systems reversed this phonics approach, teaching the vowels before the consonants. Some systems taught all of the long vowels first and then the short vowels; and some systems reversed this procedure. In any case, a child had to wait a whole year before he could rub one consonant against a vowel to form a word. We did not realize that a program which presented consonants and vowels in order of their potential for generating English words would be more efficient and more motivating. Our habit of logical organization had put our common sense to sleep.

Durrell once told of a clinic where practically all the children who came for help in reading needed a sight vocabulary. In another clinic in another city, practically all the children who came for help in reading needed phonics. The schools which sent children to the first clinic were teaching by a phonics method, while neglecting a sight vocabulary. The schools using the second clinic were teaching by the sight method while neglecting the phonics method. The reading programs, not the children, needed remediation.

Instructional practices in many places in the world, whether in developing countries or in highly industrialized countries, illustrate a common fault: They assume that one approach is the way to do it and that all children are equipped to become successful by that one approach. A study by Barr (*2*), reported in the *Reading Research Quarterly*, indicates that we must have a multifaceted approach to reading and that we must diagnose rather than assume what the child brings to reading and what he will be able to do. Reading is a complex,

dynamic process. To represent it at any stage as anything less is a disservice to the child.

Guidelines for current instruction

A letter to the editors in the Spring 1972 issue of the *Reading Research Quarterly* protests the reprinting of Thorndike's famous article of 1917, in which he attempts to express the behaviors required in the act of reading. I was very much pleased that the editors had made the reprint available, for the field had successfully forgotten his message for over fifty years. We have been busy beating the same dead horses and locking the same burglarized barns with more phonics and more sight words. Our motto seems to have been, "If it doesn't work, do more of it."

The trouble is not that phonics and sight vocabulary are useless. On the contrary, they are essential equipment for the good reader. The trouble is, rather, that our conception of the good reader has gone beyond the decoding of print. As the humorist Josh Billings once said, "A learned fool is one who has read everything and simply remembered it." Pioneer thinkers had begun a serious attack on a description of the reading process, and various points of view were appearing in speeches and journals of the 1960s. At IRA's Annual Convention in May 1960, Jack Holmes spoke on his Substrata-Factor Theory of Reading and stole the headlines in every report on that gathering. In the summer of that year at the University of Chicago Reading Conference, William S. Gray presented his model of the reading process under the title, "The Major Aspects of Reading" (since revised by Helen Robinson).

In 1970, IRA published a volume to the memory of Jack Holmes—*Theoretical Models and Processes of Reading* (*9*). It contains articles which present paradigms of the components of reading and of the processes through which the reader goes, as suggested by research evidence. Most teachers find it hard reading, but if teachers and researchers will begin to focus more attention on the operation of reading itself and less upon traditional approaches which have never quite completed the job, we shall have arrived at last at a great turning point in the world history of reading instruction.

In recent years the United States Government has allocated huge sums for the improvement of reading. What has money been able to buy? A national survey of the reading achievement of 100,000 young people, aged 9, 13, 17, and 26–35, has been undertaken in the United States by the National Assessment of Educational Progress. A preliminary report states that 50 percent of the nine- and thirteen-year-

olds were unable to identify main ideas. Thirty-five percent of the seventeen-year-olds were similarly handicapped. Children were weak in critical reading and in the ability to discriminate fact from opinion. An additional finding of the national assessment survey is that reading speed is inadequately developed in children and adults. These findings on perception of main ideas and on reading speed are not so incongruous as they appear at first glance.

For more than twenty years, teachers have been equipped with lesson plans and materials geared from the very beginning to reading for the main idea. We print paragraphs on cards and ask children to state the main idea. Answer keys tell them whether they are right. But who tells them why they are right or wrong? Who shows them how to find the clues and how to correct their strategies when they try the next paragraph?

At the junior and senior high school levels, there are exercise books which say, "These paragraphs all express cause and effect. The first cause-and-effect idea is underlined for you. Find and mark the cause-and-effect idea in each of the remaining paragraphs." But when a pupil meets such a paragraph in natural reading matter, where it has not been isolated and labeled as such, can he still recognize it? In many cases, probably not. Why? Because we have assumed that the pupil has mastered the signals that designate the main idea. We have assumed that if he can sound out the words or already knows them by sight or can guess them by context, he will be able to leap from this launching pad directly to the main idea. No wonder half the nine- and thirteen-year-olds can't do it. Our sins of omission are catching up with us. But if most of us teachers don't know how we get the main ideas we do get, how can we be held responsible for these omissions?

And what of speed under these conditions? Of what value is speed when it simply means more misunderstandings per minute? Speed is important, but our sins of omission have operated against both comprehension and speed. Speed will not be the answer to getting main ideas, even though it is true that one can read so slowly that he cannot assemble the main idea.

Approaches to beginning reading

What can we do to promote reading ability at all levels? A recent book by Aukerman (*1*) describes over one hundred different systems of teaching reading. All of these are the inventions or the borrowings of clever people. All of them contain something of worth which is not necessarily the distinguishing feature of the approach. Each one of

these has taught some children to read. But the fact that there are so many ways to approach reading should lead us to suppose that elements from several of these systems, assembled in a relationship suitable to the reading process and to the ways in which individual children can learn, would make better sense than any one of them.

Two systems of word analysis, for example, complement each other very well. One is the system of learning the letter-sound correspondences and then sounding whole words, letter by letter. Another is the system of taking whole words and breaking them into pronounceable parts. Both of these approaches are parts of the reading task, for sometimes the reader comes upon a word whose parts he knows as phonograms. If he doesn't recognize the word *pump* but he knows the familiar part, *ump*, from words such as *lump*, *stump*, and *dump*, he can think *lump*, *ump* and, using letter-sound knowledge, substitute /*p*/ before *ump* to sound *pump*. Or if, as a child, he sits and reads the sign on the loaf of German bread, *Pumpernickel*, while his mother prepares lunch, he can later grasp the whole *pump* easily without having to use such handles. The meaning, of course, will not be found in the loaf of pumpernickel, but neither will it be found by saying *ump*, *pump* or *p-u-m-p* unless he has heard the word previously in a meaningful context. Only the addition of a third system—that of studying the meaning of the word by the way it is used in the sentence and in the setting—can do that. If he learns to write the word, the sequence of letters in it will be impressed upon him. If he writes it in sentences of his own composition conveying impressions of his own, meaning and form become more firmly associated. And so on. For each writing system in the world, and for each language system using that writing system, there is probably an ideal mix of techniques which teachers should have ready for children to use, still adapting the techniques to the learning style of the child.

Reading tasks

What are some of the tasks that the act of reading requires? For one thing, the skillful reader is aware of interacting elements. Take the word *go*. It is /*go*/ and not /*jo*/ because the vowel *o* determines the sound attributed to the *g*. Add the letter *t*: *got*. Why is the sound attributed to the *o* now changed from /*o*/ to /*a*/ or /ɔ/ (depending on the dialect)? Because the consonant sound /*t*/ in the final position in the syllable changes the status of the vowel from being *free* in the final position to being *checked* in the medial position. *Go, got; no, not; so,* ___ . One can say *sot* by analogy or by simple rhyme or even by a

chant before ever learning to read. What happens if the word is reversed in printing and *got* becomes *tog*? Does it make a difference? It certainly does; it provides another principle that the good reader needs to use: that the order of letters is part of the code, just as the order of words, order of sentences, and order of ideas are part of the code.

Joe ate the bear.
The bear ate Joe.

Why such a fuss over the sequence of elements in these sentences? Ask Joe, if he is still around. Children should be taught to observe the interaction of elements and the effect of this interaction on meaning.

Furthermore, children should learn that the more knowledge they can bring to their reading, the more successful they may be in sensing the meaning of the author.

Joe could bear the suspense no longer.

Here the meaning of *bear* is changed by its role in the sentence. This sentence is of the basic type: *noun verb noun* (NVN). *Joe* is a proper name, and *the* is a determiner which precedes and heralds a noun. *Could bear* stands between two nouns, a position in which a verb can be expected. *Bear* in this sentence represents not a beast but the idea of endurance. The knowledge that Joe is a name applied to a number of living creatures adds something to the possible meanings of the sentence. Does it mean that physically this creature could not continue to endure the suspense or that for psychological-emotional reasons he was ready to give up? The other sentences surrounding this one may shed light on that question. And so we come to another principle: The good reader raises questions as he reads and looks for answers, sometimes by thinking back to previous clues or forward to coming ones.

If the reader does not know what *suspense* is, he should try to determine its meaning from the surrounding sentences. But he may have experienced some kinds of suspense and known the label, *suspense,* for them: the suspense of waiting for something he wanted, of waiting for something he feared, or of the uncertainty of what he should do next. He may even remember the suspense of being suspended from a tree, hanging from a great branch of a tall tree with the bark biting into his fingers—no place to put his feet, and no strength to lift himhim to risk the drop to the ground, and thereby end both the suspension and the suspense. The more meanings the reader knows for *suspense,* the better he will be able to judge the wisdom of choosing a particular meaning before he learns more from the text. This statement

means that a good reading program must draw upon the child's past experiences and provide other experiences in the development of concepts and the vocabularies that can be generated from their consideration.

Smith in his book, *Understanding Reading* (*10*) points out that the fast reader does not read every word or give attention to every letter of every word. Rather, he gathers from what he has read and from his prior experiences an idea of what the author is going to say; he makes conjectures about the author's meaning and keeps looking for support of his idea or for signs that he should reject it. Whether for the sake of speed or for the sake of understanding, children should learn to consider what they may find in what they are about to read and to look for clues that they are right or wrong.

I asked Joe whether he had minded.

Here is a sentence of the basic sentence type: NVNN, the second noun being the indirect object and the third noun, in this case, being a noun clause. I asked Joe a question. *I* must be a human being. Does *whether he had minded* mean whether Joe had minded or whether someone else had minded? If there is someone else, he is male. *Minded* was something he had or had not done—an act. Was it *minded* in the sense of remembering? paying attention? obeying? or caring? The good reader holds all of these possibilities in mind as he reads on and looks for proof of one or another.

I asked Joe whether he had minded.
He said, "No, . . ."

The reader thinks it natural that a person being asked a question will be the person to respond. Therefore, the reader thinks that *He* in the second sentence means Joe. Joe denies something.

He said, "No, I didn't."

Then the *he* in the first sentence referred to Joe, not to another person.

He said, "No, I didn't,
but other people did."

The reader has to infer *mind* in the first sentence here: "No, I didn't mind." *But* standing between the two clauses suggests that a contrast is coming, a contrast to the fact that he didn't mind. The expression *other people* cheers the reader with the assurance that Joe is indeed human: there is Joe and then there are other people. Other people did what? The reader must infer that other people *minded.* Notice that the good reader learns to fill in the missing words, just as in listen-

ing he must fill in the unspoken words. Notice also how Joe helped the reader see the contrast more readily by using the same structure for the two clauses: I didn't; other people did. The good reader benefits from awareness of comparability of syntactic elements.

The reader still has no assurance of the meaning of *minded.* All the reader knows is that Joe and other people differed in their feelings about something or in their behavior with regard to something. Another question which may occur to the reader is whether Joe only *says* he didn't but actually did. Thus the reader's insight is enhanced by his past experiences with lying—lying thus becoming a virtue at long last.

The good reader also searches for emphasis. What is the author stressing in idea or in intonation? How did Joe say, "No, I didn't."? (*No,* I didn't. No, *I* didn't. No, I *didn't.*) Since the full sentence expresses a contrast between Joe and other people, the stress may be on *I* and *other.* But the contrast also involves the positive and negative statements, *did* and *didn't.* If the reader had thought the stress to be *No,* I *didn't,* he might mentally correct the stress to include *I.* There are so many individual ways of reading such a passage orally that a single model is not necessarily the only correct one. However, Joe is certainly trying to count himself out of "minding." The good reader reads with expectation; but as his expectations are proven wrong, he finds himself revising his previous interpretations and forming new expectations.

Consider this next sentence to see what mental gyrations you go through, what you anticipate, and what you have to change.

He was right where you needed him least.

You must have noticed how the meaning of *right* changed from *correct* to *exactly* and how the last word negated all that had gone before. Linguists assure us that the good reader reads in chunks, not word-by-word. But it is interesting, nonetheless, to see what the addition of words does to meaning.

The good reader infers the continuation of an idea by the continued appearance of words and phrases congenial to it. The sight of words such as *goose cooking, tasting, delicious, juicy,* and *satisfying* suggests a culinary account of a goose; whereas *goose cooking, trouble, caught, penalty,* and *jail sentence* suggest in a figurative sense that someone's goose is cooking—that is, he was in trouble, and he had to go to jail as a penalty for what he did. It is the mismatch of *goose cooking* and *jail sentence* that signals the reader that a figurative expression has been used.

This ability of the reader to sense the continuation or interruption of related ideas serves him in several ways. It helps him identify figurative language. It also helps him know when and whether a new topic, another point in a series of points, or a contrast or comparison is being made.

Reading tasks in a paragraph

Here is a paragraph as a final example of reading tasks for which the teacher must equip the child. The paragraph form is no assurance of unity of thought or of the presence of a main idea. We must not make children too hopeful about the behavior of authors and printers.

The deer was very thirsty.

The in combination with the past tense *was* suggests but does not confirm that this is a particular deer that existed, not the general classification of deer. *Was* also should signal the reader that *deer* is singular. If the reader doesn't know the meaning of *deer* and *thirsty*, all he will know is that this sentence says the blank was very blanky. A good reader of English will know that this sentence describes how very something something was. If he knows the meaning of *thirsty* and the meaning of the intensifier *very*, he may anticipate that the deer is a living thing; however, the soil can be thirsty or a machine can be thirsty. If the reader knows both *deer* and *thirsty*, as well as the other words in the sentence, he will know how the deer feels, for he himself is a living thing that has experienced thirst.

Where will the author go from here? Will he tell why the deer was thirsty; that is, go to the past? Will he tell how thirst made the deer feel—the dry tongue, the parched throat—that is, describe the condition? Or will he move on? Will he tell something else that the deer felt as well as thirst? Will he contrast the deer's condition with that of a fish? Will he tell what the deer then did because of thirst? The good reader must be ready for any possibility, recognize the relationship of whatever the author does do to the statement about thirst, and not only grasp the meaning of the next idea but have a sense of the direction in which the author's thinking has gone. The abilities to do divergent thinking and to recognize cognitive patterns are crucial here.

She went down to the stream to look for _____.

So it is a female deer, a doe. *She* went somewhere to hunt for something. She went *down* to something. *Down* does not always mean down slope; it could be, for example, the down of downtown. But a thirsty

deer will not expect to get water on a hilltop; therefore the chances of a down slope are good. If *stream* is a familiar word, it is just the word the reader is looking for to associate with the quenching of thirst. *River* would have sufficed, as would *brook* or *pond* or anything else wet at a time like this!

If the sentence had been *to look for a* ____, the reader would expect *drink* or a word of similar meaning; that is, he would if he had enough mastery of English to know that the article would precede. Children having a native language that does not employ articles get no firm signal from the presence or absence of articles.

But the sentence is *to look for* ____, and the English reader would not ordinarily expect *to look for drink*. He would expect water, liquid, fluid—something wet to drink.

The first sentence states a condition. The second sentence expresses an action to be expected from that condition. The relationship between the two sentences is cause and effect. Thirsty? Look for water.

What next?

But the stream bed was ____.

In this context, the *but* heralds a contrast—something in opposition to the deer's purpose. A popular new type of mattress now is a mattress filled with water; so there is no telling what meaning the reader is going to derive from the expression *stream bed*. However, if he knows the meaning of *stream* and if he knows that the land along which a stream passes may be called a *bed*, he gathers that something is amiss with *stream bed*. Trouble for the deer would be that there is no water in the stream, that it had dried up. The reader is not surprised if the word *dry, parched,* or *empty* follows.

The deer has made one attempt to get water. Will she make another attempt, or will she drop from exhaustion? Is this the first of many disappointments? Will the author present a sequence of events?

Finally, wandering into someone's garden, . . .

If this sentence had started with the word *Then* or *Next*, it would appear to introduce a second event. But *Finally* implies that other attempts have intervened. This is the last try.

Who is wandering? Our problem female? Why is she going into someone's garden? Human beings have gardens—cultivated areas which they think they own. But if the reader lives in the hills of Berkeley, California, he knows how foolish *someone* is and who really owns the garden.

____ found a bird ____, and ____ the ____ out of that.

The word *she* fits nicely before the verb. The word *found* neatly follows the idea of looking for something. Seek and ye shall find. Cause-effect.

A bird-what? Birdhouse? Birdnest? The reader is accustomed to compound predicates: she found and blanked the blank out of that. What is *that? Out of* that. *That* is a container. It could be a house. It could be a nest. But the deer is looking for water, and water is not usually found in birdhouses and birdnests. It is found in birdbaths.

The good reader doesn't have to read every word in a passage if he knows what the important questions are.

Is the main idea that the deer was thirsty? If it is, why did the author bother to tell what the deer did about it? The main idea is that the thirsty deer kept looking until she found water. It is doubtful that the moral is that thirsty deer should look in the birdbath first.

Where will the author go from here? Perhaps he will tell another episode in the life of the doe or drop the doe entirely. He may say, *But she was still thirsty.* As long as the author is one person and the reader is another, there will be surprises in the direction the author takes and in the way he makes his points. A good reading program teaches the reader to recognize and utilize clues to author direction. It doesn't expect him to learn all of these things by himself.

The professional task

Some fascinating research supports the importance of such considerations as I have mentioned. One can go back to the work of Cattell in Europe, as Frank Smith has done, to the work of Thorndike or of Vygotsky (*12*) who writes that all language is generalization—a hard enough hurdle by its very nature. One can try to keep up with some of the brilliant basic research of the present time and do his own introspection about the way he derives meaning from his own reading.

By introspection and by the use of a few examples we have arrived at the following tentative conclusions about the behavior of a skillful reader:

He is aware of interacting elements in language.
He reads in chunks, not word by word.
He notices the order of letters, words, sentences, and ideas, as significant features of the code.
He uses his knowledge of the world and of the language associated with it.
He gives some thought to what he may expect to find in his reading even before he reads.
He holds many possibilities in mind as he reads: possibilities of word mean-

ing, sentence meaning, order, ideas, organization, and author intention.
He raises questions as he reads, looks for answers, and thinks back to previous clues and forward to coming ones.
He revises his interpretation of previous material when his expectations prove to have been wrong.
He searches for evidence of the author's intended emphasis.
He infers the continuation of an idea by the continued appearance of words and phrases congenial to it.
He fills in missing words mentally or, at least, is not confused by their absence.
He notices the comparability of syntactic elements.
He notes clues to the direction of the author's thought and the relationship of ideas to one another.

And the good teacher doesn't expect the child to learn all of these behaviors by himself.

This time in the history of reading research will be famous for the work of pioneers who now probe for more than we have ever realized about the reading act and the difficulties that beset the learner. May this time be equally famous for the ingenuity of parents and teachers who match the new knowledge with pioneer work in the home, in the classroom, and in the community to promote reading ability at all levels.

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The Effects of Reading on Children and Youth

IF READING has no effect on children and youth, schools and teachers are wasting energy, time, and money by holding classes and trying to teach pupils to read. However, the assumption has been commonly accepted that reading does provide positive benefits for readers. Hunt (*15*), who won the Newbery Award for her book *Up a Road Slowly*, describes the influence that books can have:

> A book is not a precious thing only by virtue of getting into print. Unless it leaves the child with a better understanding of the world around him, with better insights into his own needs and behavior of people around him, unless it leaves him with experiences of delight for his imagination and pleasure in the beauty of imagery and syntax—unless it leaves him with some or many of these attributes, it is undeserving of the name of literature.

In spite of common acceptance of the idea that literature can make a contribution to the development of an individual, few research studies have been made that show the effects reading has on young people from the ages of five to eighteen. Completed studies tend to be descriptive rather than experimental and often include small samples, while failing to add support to the meager data.

The purpose here is not to present a summary of the research on the topic but rather to note some aspects that have been studied, the methods used, and the difficulties encountered. The studies fall chiefly into five categories: 1) concepts and information, 2) interest in reading, 3) changes in attitude, 4) personal problems, and 5) appreciation and taste.

Concepts and information

Concepts are thoughts, notions, or ideas that constitute the basis for understanding. The acquisition of concepts through reading is one of the effects assumed and exploited by the school.

Piaget's theory holds that children learn through accommodation and assimilation—accommodation of new experiences and events by enlarging and reorganizing their cognitive perception, then assimilation and absorption of the new experiences within the enlarged total (*20*). Much of the reading pupils do in school is for the purpose of acquiring information, and achievement tests give evidence, in part at least, of their accomplishment. But difficulties arise regarding the validity of standard tests for those pupils whose courses diverge from the usual curriculum, the contribution to total learning made by reading as opposed to direct, firsthand experience, and the criterion measures acceptable as evidence of knowledge.

LaConte and Rees (*20*) describe a one-year project in Hartford, Connecticut, part of Operation Astra, to help gifted pupils in the intermediate grades discover the myth basis of literature by first writing myths of their own, then by reading myths and folktales of various cultures, and finally by applying the ideas to the general body of literature. Hopefully, students would develop their abilities to understand other cultures, to be alert to their own cultural myths and customs, and to acquire cultural perspective (*3*). Yet, data to prove these assumptions valid are nearly impossible to obtain.

The effect of reading stories on children's concepts of sportsmanship was studied by Bovyer, who asked teachers of fourth, fifth, and sixth grades in two schools to read aloud twelve short sports stories that illustrated several facets of sportsmanship. Experimental and control groups were set up, and the 213 children in the study wrote "relevant ideas" regarding sportsmanship before and after the reading of the stories. The written comments were validated by sample interviews, but no discussion followed the reading, though children indicated a desire to do so. Bovyer (*4*) concludes that single readings were not enough and that teacher guidance and discussion were necessary to bring out the "forces of literature."

At the high school level, Fischer et al. (*11*), instructed 266 students on safe driving by using programed materials interspersed with stories on three levels of danger (low, moderate, and high) which were combined to form five experimental *intensity* conditions (control, low, moderate, high, and mixed). The instructions provided three orders in which the threatening stories could be presented (all after, all before, and mixed). The students in the study retained more content associated with mild than with strong or control (nonthreat) conditions, but the trends were significant only for the female subjects. For male subjects only, the use of threatening stories following instruction was superior

to that of stories preceding instruction; after one month when retention was measured, results in all cases were more pronounced.

These studies suggest that methods for developing and retaining concepts are specific so that constructing a scientifically based curriculum seems an almost insurmountable task. However, each study contributes to the total, and as studies are repeated and coordinated, progress can be made. Nevertheless, to prove that concepts result exclusively from reading omits other sensory impressions and avenues of experience that contribute to cognitive development.

Interest in reading

An interest is defined as "a feeling of wanting to know, see, do, own, share in, or take part in." There is an element of self-involvement with no outside pressure. The acquisition of a permanent desire to read is one of the lasting effects of such an interest, and to make lifetime readers of pupils is one of the goals of the school.

The importance of reading in the lives of school children was studied during the 1920s by noting the number of books read and the number of people having library cards. In the 1930s the New York Regent's Inquiry included an analysis of the diaries children kept concerning their book and magazine reading for a three-week period. Test results showed that children's knowledge of literature was less than in any other major elementary field, implying the low status of literature as a school subject and indicating the need to upgrade the program of teaching (*17*).

In 1957, McCullough asked children in three areas of Oakland, California, to keep a "log" of their out-of-school activities for a week. When analysed, these records showed that recreation, work, and television were most popular. Books were read by 25 to 40 percent of the children; newspapers, by 7 to 12 percent; and magazines, by 5 to 10 percent. Home influences were found to be important in establishing the reading habit (*17*).

A two-year study of the usage of library books versus texts in a junior high school science class was conducted by Barrilleaux. Two eighth grade classes were matched, with both groups following the same curriculum and being encouraged to use the library, but only the control group was issued textbooks and/or instructional materials. When library behavior was observed and recorded one day a week for twenty-five weeks, the experimental group made more library visits and devoted more time to science and to total library activities than the control group (*1*).

Studies of television viewing by readers and nonreaders are related to

the place of reading as a recreational activity. Both Lazarus in 1956 and Witty in 1962 (*17*) found that viewing by elementary school children became stabilized at approximately twenty hours per week and by secondary pupils at fourteen hours. Nonreaders tended to view television more than readers, but those who did not view television also tended not to read. Recently, few studies relating television and reading have been reported, a fact which could be interpreted as an acceptance of the medium and a realization that it has not forced out reading as some pessimists had predicted previously.

While studies show reading as an activity in which children engage, there are really no longitudinal studies showing the permanence of their interest in reading, their motivation to read, or the real importance of reading in their lives. A great deal that is written on the topic consists of wishful thinking on the part of teachers and others interested in promoting books.

These studies suggest that interest in reading can be sparked by home influences, by utilizing library books in school classes, and by a moderate amount of television viewing. Other activities in the home, school, and library undoubtedly contribute toward promoting interest in books, but data are not available and research is needed to substantiate opinion and conjecture.

Attitudes

An attitude is "a way of thinking, acting, or feeling." The effect of reading on the attitudes of students towards other groups of people was studied by Jackson, Tauran, and Fisher. Jackson matched two junior high groups to study the effect of reading stories sympathetic to the Negro. Form A of the Hinckley Scale for Measuring Attitude toward Negroes was given as a pretest and Form B as a posttest. The experimental group tended to be more liberal on the posttest, but a testing two weeks later showed the gains were lost (*18*).

Tauran set up experimental and control groups of third graders to note their attitudes toward Eskimos. Four of the eight groups were given an attitude scale as a pretest, and all eight groups were given the scale as a posttest after stories favorable and unfavorable to the Eskimos had been read. The influence of the stories corresponded to the content, and the conclusion was reached that favorable attitudes can be reinforced to resist unfavorable information (*29*).

Fisher (*12*) shows that reading material about the American Indian can change attitudes of fifth graders. Pretest and posttest comparisons on an attitude test show that the group reading stories changed more than

those not reading at all but that those discussing the stories following the reading made the greatest change. But changing attitudes is only the beginning; changing behavior is the ultimate goal. In 1964, Festinger (*10*) lamented the fact that "the absence of research and of theoretical thinking about the effect of attitude change on subsequent behavior is indeed astonishing."

Only a few studies have been made, including one by Shirley who gave a questionnaire to 420 high school students in Tucson, Arizona, requesting them to report changes in their concepts, attitudes, and behavior as a result of reading. A total of 1,184 influences was reported of which 45 percent were concept, 40 percent attitude, and 15 percent behavior changes. When fifteen students rating high were compared with fifteen rating low, the former gave evidence of developing self-understanding (relation to and empathy for others), of formulating decisions, and of acting on these decisions while the latter asserted no influence of specific works and gave only vague and general statements. Students were influenced more by their voluntary reading than by their assigned reading, whether fiction or nonfiction (*27*).

In another study, Webster interviewed 80 first-grade children to locate their fears. Of this group, 35 were afraid of the dark and 5 of dogs. Five different stories dealing positively with the dark were read and discussed freely, one a week on rotation to each group of 7 children while the group of 5 had dog stories read and discussed. Three months later, children were interviewed again, and 29 of the 35 had reduced their fear of the dark and all 5, of dogs; but whether the five stories were responsible for this change is extremely difficult to prove. Webster reports the change might be due to relearning or to the reinforcement of the discussion (*30*).

Like other studies of the effect of reading, the intangible nature of the results of these studies makes them difficult to assess. Many questions remain unanswered, such as the following:

How persistent must an attitude be to say that it has been "acquired"?
How are attitudes acquired through reading transferred into behavior?
How can changes in behavior be ascribed to reading when other experiences have contributed or intervened?

These and other questions need answers if the effects of reading are to be judged accurately. In the absence of hard data, however, Chambers' comments (*6*) seem appropriate: "Because we are currently unable to measure a truth does not mean it lacks substance." Until proved otherwise, books will doubtless continue to assume importance in attitude development and behavior change.

Personality problems

Great teachers have used literature to help pupils cope with personal problems at least from the times of the Greeks. The term *bibliotherapy* came into the language relatively recently; and while physicians, psychologists, and teachers may differ on the exact definition, Russell and Shrodes define it as "a process of dynamic interaction between the personality of the reader and literature—interaction which may be utilized for personality assessment, adjustment, and growth" (*26*).

In a historical review of the use of bibliotherapy from before World War I up to the 1960s, Beatty (*2*) points out that bibliotherapists viewed the field with enthusiasm as an art or as a science requiring case histories and records as evidence of success.

Hospitals have used bibliotherapy as part of the treatment for the mentally ill, and schools have applied it to the emotionally maladjusted, the gifted, the retarded, and the normal child. Recently, preventive bibliotherapy has been used by giving children books to read in advance of anticipated problems; e.g., difficulties in peer relationships or in preparation for marriage (*9*).

All this activity implies a commitment to the positive effects of bibliotherapy, an outcome which unfortunately is not supported by much research. Summaries have been made by Gray (*14*), Russell and Shrodes (*26*), Linderman and Kling (*21*), and Cianciolo (*7*), and reports consistently point out the need to validate claims, to extend the use of the technique with normal children, and to study the reactions of the reader to the specific material.

In 1944, Lorang (*23*) used a questionnaire to get opinions of 2308 high school students in 8 schools about the effects of their reading specific books and magazines. The reports show 53 percent tried to act like the character in the book and 21 percent like the character in the magazine. In 1968, Lorang repeated the study and made comparisons between the two groups. The number of books mentioned per student had increased 1400 percent, and the number of magazines per student had increased 288 percent; but the conclusions of the previous study remained the same (*22*).

Shrodes (*28*) found that pupils' reactions to imaginative literature proceed from identification to catharsis to insight. In another study (*19*), Kelly interviewed 27 sixth graders who had read as many of the Newbery Award books as they could in eleven weeks. When she interviewed the pupils following the reading of each book, she found that children "identified strongly with characters having humanistic qualities, as well as with persons who displayed strength, determination, and the ability to overcome adversity. It was thought that characters with undesirable

characteristics were realistically portrayed and were necessary to the development of the story."

Related to the identification with the character is the development or support of the reader's self-concept—how he views himself, not how others view him. Clark (*8*) compared 84 boys and 80 girls in grades four to six on their perception of their standing in the top or bottom half of their classes with their grades in reading, spelling, and arithmetic and with the grades of peers the students thought were their equals. In fourth grade, girls rated themselves higher in reading than the boys did, but in sixth grade there was no difference. This fact was interpreted to indicate a reduction in self-rating of girls who thought themselves high on reading.

The rejected children in Bloomer's study (*3*) tended to be older, had lower IQs than two of the four other groups, and showed significantly lower reading achievement. Though reading scores on skills requiring memorization were similar for all groups, the rejected children were significantly inferior on all tests of analysis and synthesis and to two groups on isolated subtests. While self-concept as such was not studied, the relation between rejection and self-concept is evident.

Reading to help solve problems is important whether bibliotherapy is called an art or a science, and readers will continue to identify with characters that are real and that appeal to them. The lasting effects of identification and the improvement of self-concept need additional study.

Appreciation and taste

Like other effects of reading, the development of appreciation is an elusive element. To appreciate means "to recognize the value, worth, or quality of an idea or thing." While related to evaluation, this definition connotes more than mere appraisal and includes an awareness of the contribution that quality makes rather than being purely a recognition of level of language and concepts.

Though research on this topic is meager indeed (*16*), four studies will be mentioned. In 1929, Broening (*5*) compared equivalent classes after the experimental groups had been given lessons in literary appreciation. She concluded that literary appreciation can be measured quantitatively and qualitatively but that growth in the ability to select the superior version was not identical with knowing why the version was superior.

Ten years later, Mason (*24*) demonstrated the influence of Book Week activity on the amount of outside reading one fourth grade class did, and a later study by Fox (*13*) with fifth graders indicated the effectiveness of finding books to meet individual interests and of making an abundance of good books available. She concluded that good books can drive out the

undesirable and that children can be led to develop an interest in reading for pleasure, in evaluating their own reading, and in elevating their tastes.

A recent study by Morris (*25*) who compared a planned, sequential approach with an incidental approach to teaching literature, found that pupils of high intelligence apparently understand and interpret literature better than those of middle and low intelligence, regardles of the method used. Individual and small group activity and amount of time available seemed to be influential.

Studies of appreciation and taste are complicated because the number of variables makes controlled experiments difficult; the development of appreciation takes time, a factor which implies longitudinal studies with the attendant problems of subject and experimenter mobility; the intangible aspects of intellect and emotion are difficult to define precisely and are resisted by some as invading the privacy of the individual.

Summary

This brief glance at some of the research on the effects of reading indicates that pupils do obtain concepts and information through reading, but because of the specific nature of the studies and the size of the field, the work that has already been done is infinitesimal. Interest has been fostered by a home environment conducive to reading, by promoting library usage in schools, and by a moderate amount of television viewing. Attitudes have been changed more often through reading followed by discussion than through reading alone, and books as therapy may be useful in aiding readers with personal problems and in discovering and accepting themselves, but the effectiveness is difficult to assess.

The development of appreciation and the improvement of taste, which are probably the most important goals of literature instruction, have been studied the least although the research implies that improvement can be made through conscious effort.

Studying the effects of reading is complicated by the difficulty of determining what kinds of evidence are valid as measures, by the shifting of individual reactions over a period of time, by the different learning modalities of the learners, and by the unconscious as well as conscious retention of ideas and information.

Nevertheless, teachers must remember that the only way the wisdom of the ages accumulated in books can be utilized is through reading and that reading does make a difference—for better or for worse. Reading holds for each individual the possibility that he can fulfill his highest potential—a possibility which is effect enough.

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Perspectives on Reading Research

WHEN we want to evaluate the various ways of teaching reading, changes as to the structure and content of reading material, and the uses of technological aids in reading instruction, the opinions of a number of experts within respective areas will be of value. By their knowledge and practical experience they will be able to give some rough estimate of the comprehensive picture and the total effect of certain measures.

As a rule, however, the views and judgments expressed by the practitioners will not yield sufficient evidence as to which of the various components of the activity the observed effects are attributable. Some of the elements included in the activities under study are quite useless and may even have braking or diminishing effects.

In order to get more detailed and more accurate information of this kind, experimental research should enter the picture by refining the cumulations of wisdom collected through practice.

After a systematically arranged, thorough, scientific analysis of an instructional system in reading, we will get a more secure basis for decisions as to which components of the system are of special value. This approach applies with particular force to the evaluation of new ideas and innovations. A research approach offers great advantages when measured against the use of only subjective meditations and judgments emanating from the experiences gained through practice. Moreover, the need for speeding up the changes within the educational systems so that the school will be able to keep pace with the rest of the society will generally be promoted more by the contributions of research than by suggestions from the representatives of practical educational experience.

The interest in the quality of the product of teaching is evident in educational circles around the world, as it should be. But we should study in detail the cost of a certain learning product. We often limit our interest to the effects produced by that method. We rarely ask for the cost of raising the result level to another quality level.

In such cases, systematic educational research can be of great help regarding evaluation of quality and the calculation of the cost for reaching a certain quality level. Particularly in developing countries with limited

resources, research needs must be weighed carefully in order to reach decisions as to how limited assets are to be applied in order to yield the best possible benefits. Seemingly costly research projects, well planned and executed, will generally pay off richly in an economical sense.

The industrial countries have established formal educational systems where reasonably efficient reading instruction is given to all children. But it took these countries several hundred years to develop these systems. The developing countries have to go through the same process. But they cannot reasonably spend such a long time to reach the same goal. This process must be accelerated. The developing countries have many unique problems of their own. In their efforts to improve their school systems, the developing countries should not limit themselves to using existing research evidence gathered in more advanced countries. There is within the developing countries a great need also for research studies designed and carried through within their own educational environment and aimed at solving their special problems.

Research priorities and needs for developing countries

Knowledge in the widest meaning of the word is the vital component —*a sine qua non*—if available resources are to be put to the best possible use. Knowledge does not come and stay once and for all. Knowledge is under continuous flow and creation. There is no reason why reading knowledge gathered in some countries with advanced educational systems should not be studied and, if applicable, utilized by other countries.

In order to make such a transfer of knowledge a reality, there is a great need in the developing countries for personnel capable of understanding and interpreting research and selecting the kind of information which is applicable to their own situation. An active reception of research results presupposes a well-developed receiving station; i.e., a research milieu which is able to integrate and adjust the observed results reached elsewhere. And such a milieu cannot exist without research of its own.

As a starting point in making this kind of research review and also in carrying out one's own scientific studies, modest research units should be established. In the beginning perhaps there should be only one at the national level and a few at the regional and local levels. Adequate communication channels should be created among the research units and school administrators and teachers at various levels. Then the collection of survey data covering various aspects of the educational systems within a certain region or within the whole country should be given a high priority. The survey method can be used in order to provide information concerning the following:

1. the teachers, administrators, and other personnel engaged within the educational system (number, sex, professional training, number of years of service, salaries);
2. instructional materials available for the teaching of reading;
3. teaching methods in use;
4. level of adult literacy in urban as well as rural areas;
5. pupil status in reading accuracy, comprehension, study techniques grade by grade; and
6. availability of school buildings and libraries.

The researcher may also want to sample ideas and recommendations or attitudes and opinions by the use of survey technique. Information can be obtained through face-to-face contact during an interview or by a pencil and paper approach using a questionnaire of some kind. The interview has many advantages and many difficulties: it is time-consuming, costly, and outcomes tend to be highly subjective, especially if its form is unstructured. The mass survey technique makes it possible for a researcher to quickly obtain information from large numbers of persons located in widely scattered geographic areas.

Research data can be collected in many different ways. But whatever method is employed, the researcher has to be concerned with the tools he is using in his data gathering process. The more accurate and precise studies the researcher wants to make, the more necessary will be a refined measurement approach. The use of scientific measurement in the evaluation of teaching and learning is probably one of the most important ways to bring about educational change. School strengths and weaknesses can be identified and defined. In this way changes leading to improvements can be predicated on a sound basis.

The first step the researcher has to take when applying the measurement method to a study is to delineate what he needs to measure. Then he must decide which instruments and techniques can be used to obtain the desired measurements. Frequently a researcher will find that the measuring instruments he needs are not available within his own country and that he might have to construct and standardize appropriate instruments. However, it might be possible to translate and restandardize measuring instruments developed in other countries if the authors grant permission to do so.

There is certainly a great need for research on reading in developing countries. Pilot projects involving only a small number of subjects and teachers could be initiated by research and development units for the preliminary study of the following:

1. The applicability of some of the most promising methods and read-

ing materials used in other countries for the teaching of beginning reading,
2. children's vocabulary and sentence structure which might be used in preparing textbooks and related materials for beginning reading,
3. specific problems encountered by children who speak a different tongue at home but who learn to read in a certain standard language,
4. the development and testing of reading materials for various reading capacity levels,
5. the creation of interest in teaching illiterate adults to read,
6. the development of integrated materials and media—learning systems for teaching adults to read,
7. the development of models for the efficient education of teachers in reading through radio and television,
8. the choice of languages for various forms of adult reading education,
9. preliteracy programs for illiterate adults (will bilingual teachers be needed?),
10. postliteracy programs for illiterate adults, and
11. the distribution and maintenance of radio receivers and the organisation of listening groups for mass-media programs designed to teach beginning reading to illiterate adults.

Results of reading research

During the past forty years, the number of scientific publications concerned with reading has multiplied, especially in the United States and the western and northern parts of Europe. These studies vary considerably in value. A large number of them suffer from serious methodological defects, and in many the population investigated has been selected in such a way that the results have limited usefulness.

Many investigations that claim to make reliable statements about the general characteristics of children with reading difficulties are based on nonrepresentative samples. The samples may represent a certain intelligence level or a certain social group, or they may be drawn from a reading clinic to which only persons with certain types of reading difficulties are sent. In many investigations the statistical treatment of the sample and the evaluation of the results are not adequate. But there are numerous carefully controlled investigations where an appropriate scientific methodology was used for the selection of the population, the design and conduct of the study, and the statistical treatment and evaluation of the sample. I will try to indicate in a summarized form some of the most significant results reached by a number of such studies.

Eye movement studies

Photographic studies of eye movements in reading have shown, among other things, that the psychological recognition of words never takes place while the eyes are in motion. The movements are too quick. Only when there is a pause in the movement of the eye, a "fixation," does the reader attempt to understand a word or its parts. Thus, it is at the fixation point or pause that the reader grasps the meaning of a phrase. At times, the eye regresses along the line in order to go over some words. Such regressive movements—like rereading frequency—may indicate that the reader has difficulty in reading comprehension.

Wide variations in the number of fixations and regressions occur both in readers of different ages and in readers of the same age but at different levels of reading ability. The average duration of a fixation pause ranges from 1/3 second for children in the first grade to approximately 1/4 second for college level readers. Fixations take up about 90 percent of the entire reading time in rapid reading and about 94 percent in average reading (*22*). Therefore, those phases of the reading act, when the eyes pause and when the thinking and comprehension occur, are much more important than those which occur when the eyes are moving along the lines.

The "span of recognition" is defined as the number of words or parts of words that can be clearly taken in by the eyes in a fixation. It has sometimes been claimed that good readers have an exceptionally wide recognition span and that they are able to perceive whole groups of words, maybe even whole sentences, in one fixation. Research results, however, do not support such claims.

The findings of hundreds of eye-movement studies show that the span of recognition varies from less than 1/2 word for first graders to 1.1 to 1.3 words for average college students. From studies of rapid readers reading 600 to 700 words per minute, we conclude that rarely is a person able to take in more than 2.5 words per eye stop (*21*).

Note that inefficient eye movements are not the *causes* of reading disabilities. They are only *symptoms* of the difficulties the reader is experiencing when trying to understand what he sees.

Investigators have found that special instructions and exercises with gadgets and machines do little to help a reader develop proper eye movements (*18, 19, 22*). But, ordinary, sound instruction usually improves both comprehension and speed. The improvement, in turn, shows up in more efficient eye movements.

Studies using special cameras to map eye movements have considerably increased our knowledge of certain phases of the reading process. There has been less of this kind of research in the past decade, however. The focus has shifted from the peripheral mechanical aspects of the reading

process to more central ones, such as perception, comprehension, and various kinds of creative thinking (*1*).

Preschool influences

A child's progress in learning to read is to a considerable extent dependent upon his experiences with the use of the spoken word in his preschool years. Thinking and language develop simultaneously. The extension of meaning in language is a lifetime process. But lack of adequate training in the early years of life may seriously hamper the development of an individual's later reading performance and his whole personality development. A poor verbal environment in which the adults seldom speak to the child and the conversation is limited in extent and variety will negatively influence the child's developing good speaking ability and, thereby, will cause great reading problems later on.

Methods of instruction

Research has shown that there does not exist one method of teaching reading which is best for all children. Rather, teachers should look for some proper combination of methods best fitted to each child. More research is needed, however, in order to identify procedures for teachers to match appropriate methods to the aptitudes, skills, attitudes, and interests of each child.

Early diagnosis and early treatment

Many investigations have stressed the significance of early diagnosis which might make early treatment of potential cases of reading disability possible. The lack of acceptable predictive instruments still seems to be great in most countries. It must also be admitted that few acceptably controlled longitudinal studies have been made of the effects of remedial instruction on children with special reading disability.

I have myself reported on a six-year longitudinal study of the development of reading ability in children at the primary stage (grades one, two, and three) of the comprehensive school carried out in different parts of Sweden. The pilot study comprised 20 classes with a total of 386 pupils, and the field experiments included 72 classes with a total of 1653 pupils from 12 towns. To test the hypothesis that it is possible to reduce considerably the number of cases of special reading disabilities during the first three years at school, the experimental control group method was applied. The differences among the groups were studied by various methods, such as analysis of covariance. A series of multiple regression and correlation analyses was made in order to study the predictive power of various predictors of reading disability. It may be said that more than

80 percent of the cases identified as potential cases of reading disability at the beginning of grade one were prevented (*12*).

A duplication of this type of longitudinal research study into the effects of early identification and treatment of reading disabilities seems to me to be of the greatest importance and should be initiated in other countries around the world.

Causes of reading disabilities

There is general agreement that the nature of the reading process is complex. Consequently, reading disabilities can rarely be attributed to a single cause. Usually, many factors operate simultaneously, though their relationships and relative importances may vary.

The complexity of the reading process makes it difficult to survey the causes of reading disabilities. Investigators are still faced with many unsolved problems. Frequently, they can only state that specific symptoms are exhibited in connection with reading disabilities. Although certain factors or groups of factors are apparently definitely related to the disabilities, it has not always been possible to determine the exact cause and effect relationship. Below is a list of some of the factors or groups of factors that have been found to cause reading disabilities:

1. Lack of readiness for reading;
2. general intellectual backwardness;
3. physical handicaps—defective sight and hearing, neurological defects, glandular disorders, low vitality;
4. general retardation of speech development—speech difficulties, special speech defects, limited vocabulary, restricted background of experience owing to social and cultural handicaps;
5. personality factors—emotional difficulties, general adjustment difficulties;
6. socioenvironmental factors—irregular school attendance, frequent changes of schools or teachers, unfavorable home conditions; and
7. defective teaching methods and school organization—inability of the teacher to adjust the teaching to the individual child's ability and stage of maturity, too rapid teaching at the elementary stage, too scanty a supply of reading material of sufficient variety to satisfy the requirements and interests of different pupils, and overcrowded classes.

Usually, children with reading disabilities cannot be adequately helped by intensive tutoring on single reading skills only. As has been pointed out again and again, multiple causes require multiple remedies. The current programs in many reading clinics and special school classes that

help children with reading disabilities seem to be based on these research results, but some programs in different countries ignore them.

Effects of remedial instruction

According to a number of studies, competent instruction has positive effects for children who are retarded in reading (*8, 9, 13*).

The results of certain follow-up studies indicate that after a learning period there is a considerable decrease or leveling off in the improvement of reading ability unless remedial instruction is continued.

Vocabulary development and reading comprehension

According to available research, vocabulary development is a major facet of reading instruction. Word meanings are found to be basic to reading comprehension. From his intensive studies Davis (*6*) concludes that teachers should use every possible way to increase and improve the vocabulary of their students by systematically introducing new words in appropriate contexts.

Davis isolates eight discrete subskills within the general category of comprehension: 1) remembering word meanings; 2) inferring word meanings from the context; 3) understanding content; 4) weaving ideas into the content; 5) making inferences about the content; 6) recognizing the author's tone, mood, and purpose; 7) identifying the author's literary techniques; and 8) following the structure of the content.

These subskills should be good starting points for a diversified teaching of comprehension abilities.

Models for analyses of reading processes

The Targeted Research and Development Program on Reading, which is supported by the United States Office of Education, has used an especially interesting technique—the convergence technique—to analyze the reading process and to design some alternative instructional procedures to efficiently teach the reading of various kinds of material at various levels.

The models on reading elaborated by the use of this technique seem to be promising and might become of great value for both teachers and researchers within the field of reading (*2, 11, 16*).

Reading of poetry

Research on the reading and interpretation of poetry is relatively sparse. But investigations by Squire (*17*) have at least given some starting points to help provide teachers with suggestions and recommendations on how to improve students' comprehension of poetry and short stories.

We have, however, even less research to depend on when we attempt to give advice about how to teach the students how to read efficiently and fruitfully other literary types such as novels, essays, biographies, and dramatic literature.

Factors influencing reading habits and reading interests

There are great differences among individuals in their reading habits, reading interests, and reading preferences. Each person has at succeeding levels of development his unique desires, likes, dislikes, and needs. Research has demonstrated that there are certain needs and factors which seem to influence most readers although they are of varying importance at different ages.

Studies like those of Shirley (*15*) and Squire (*17*) in the United States and by Sakamoto et al. (*14*) in Japan show that self-image and self-involvement and social, cultural, and environmental factors influence the reading choices made by students. Researchers have tried to determine how schools can affect students' reading interests and reading habits.

Critical and creative reading

A number of studies have shown that the teacher's ability to ask thought provoking questions plays an important role in the development of a student's ability to think critically and creatively. The results of an investigation by Taba et al. (*20*) indicate that teachers who have been given systematic training in the art of posing questions and guiding students' development in critical reading asked many more questions whose answers demanded careful analysis and evaluation than did teachers who had not received this special kind of training.

The investigators came to the conclusion that it pays to train teachers in the techniques of stimulating critical reading. The teacher's capacity to raise problems and introduce relevant thought provoking questions strongly influences the development of the reading desires of the students and their ability to discover different purposes of reading.

Needs in reading research

Instructional materials

Numerous studies have been conducted on the inherent difficulties of printed instructional materials. Investigations of this kind have usually been concerned with such features as vocabulary, sentence length, and sentence structure. The "readability" of the materials is determined by studying these factors.

It is quite evident that the difficulty of reading material plays an important role in determining the effect the material may have on a particular reader. But many elementary weaknesses within this area of reading research have not been overcome. The typical instruments for measuring the difficulty of reading materials assess the number of hard words, number of letters in words, and number of words in sentences. The abstractness of the material, the concept load, types of ideas, and content are not measured by the use of existing formulas.

Personality traits

In spite of the puzzling and seemingly contradictory nature of some of the research results regarding personality characteristics and reading disabilities, summaries of the most valid studies indicate that there is a relationship between reading ability, emotions, and personality.

There is, however, a great need for further clarification of what personality traits act as motivational forces and mobilizers for all learning, including learning to read at different maturity levels and creating lifelong reading habits.

Reading ability and mathematical achievement

The relationship of reading ability to mathematical achievement has been studied by a number of researchers. The data obtained from these studies suggest that besides certain intellectual and mathematical capabilities certain reading skills are needed for success in mathematics. Beyond general reading skills Corle and Coulter (*4*) state that the three most important special reading skills needed by intermediate grade children for solving verbally stated arithmetic problems are 1) vocabulary development, 2) literal interpretation of the problem, and 3) reasoning—the selection of the proper solution process.

Corle (*3*) reviews the major research findings on the relationship of reading skills to mathematical achievement and points out the need for further research on the readability of mathematics textbooks involving vocabulary—both general and quantitative—the difficulty of nonverbal items such as symbols and graphs, and the interest level of the textbooks. He also reports that he has found few studies on the effects of listening as a mathematical teaching strategy and a lack of investigations into techniques for efficient teaching of symbols, formulae, graphs, diagrams, scale drawings, and other nonverbal items.

The importance of good reading ability to good achievement in arithmetic has been clearly verified by many research studies. Coulter (*5*) indicates some of the classroom implications of the results of these investigations. He distinguishes among four major classes of reading tasks

required in arithmetic, which should be bases for the classroom teacher's instruction in specific arithmetic-reading skills.

1. Understanding symbols, expressions and signs, and specialized devices used in the study of quantity, distance, weight, area, volume, and time.
2. Understanding the general organization of the material. Overview of the content, the scope of the material, distinctive characteristics of the content, and special features of the text.
3. Developing the special vocabulary of arithmetic.
4. Reading to solve verbal problems.

Effective reading teachers

Many studies indicate that the teacher is a more important variable in reading instruction than are the teaching methods and instructional materials. Nevertheless, reading research has not yet succeeded in identifying the characteristics of effective reading teachers. This important area of reading research certainly deserves more attention than it has received in the past.

As Harris (*10*) points out, the outstanding performer in the performing arts and in athletics is easily identified. His technique can be observed, analyzed, and used as a model.

> In reading, we need to identify a group of outstandingly successful teachers at each level. Once we have identified them, we can record sample lessons and compare their procedures with those of teachers who obtain mediocre results. Such comparisons should reveal important characteristics that identify superior reading instruction.
>
> Once we know what the reading techniques and skills are that make for excellent pupil learning, we already have the technology for imparting them to preservice and inservice teachers.
>
> The essential ingredient is a recorder which registers what happens when a lesson is taught and allows later detailed observation and analysis. Modern inexpensive television cameras and tape recordings supply the essential technology. Exemplary lessons can be recorded on tape, transferred after editing to motion picture film, and used to provide models of good teaching (*10*).

Diagnostic procedures

A new strategy of diagnosing reading ability should be sought by intensive research which consists of a multiplicity of methods. Attempts should be made to allow qualitative evaluations of individual learner's thoughts, feelings, interests, purposes, and aspirations to be carried out with greater ease and reliability.

A diagnostic approach of this kind might well turn out to be much more significant and helpful for the teacher than the mere accumulation of test scores of various kinds. Similarities and dissimilarities among diagnostic procedures used by specialists in clinics and those used by teachers in classrooms should be clarified.

Reading in content areas

Reviews and analyses of research indicate that we still know too little about which reading skills are relevant to various content areas. However, some interesting and hopefully fruitful hypotheses that should be tested have emerged during the past decade. Several researchers speak of some general foundational skills common to all content fields although the skills seem to vary in emphasis in different areas and situations. On the other hand, we find that many researchers have tried to identify specific reading skills directly related to achievement and success in a particular content field; for example, mathematics and social sciences.

We need more research on the skills required for reading in the content fields. But this research must be better designed, controlled, evaluated, and characterized by a more cumulative approach. We need research that synthesizes what we know about the role of various reading skills in improving achievement in content areas. And we also need practical suggestions for teaching these skills that have been tested.

Reading and thinking

Reading should be regarded as a developmental process that is ongoing during an individual's whole lifetime, extending from infancy through adulthood. There is enough research evidence which allows us to state that at every age and at every level of development there are general and specific reading skills to be mastered.

The great majority of the reading research studies have been devoted to methods and instructional materials in beginning reading. But few studies are concerned with the use of reading as a tool, as an instrument for learning, as an aid for functional thinking. Despite a century of scientific study of reading, there are many interesting and vital issues yet to be solved.

Reading and illiteracy

According to recent reports by Unesco the number of illiterates in many areas of Africa, Asia, and Latin America remains as high as 70, 80, or even 90 percent of the total population. Moreover, it is pointed out that in many countries the female population is almost entirely illiterate.

Presently, about 35 percent of the world's population is still estimated to be unable to read at all. At least 65 percent of the world's population is estimated to fall below the level of functional literacy, the fourth grade level of reading ability.

The struggle against illiteracy is one of the most important and also one of the most gigantic and demanding tasks of our present generation. The experiences of research and development projects within illiteracy campaigns have demonstrated the usefulness of functional methods and materials of reading instruction. The value of visual and auditory aids such as films, film strips, radio, and TV in facilitating the learning process has been shown. It has also been found that recognition of learners' needs and utilization of firsthand experiences will greatly improve interest and motivation for continued learning.

Opportunities to check progress step by step at regular intervals and availability of instructional materials of appropriate difficulty and interest levels are other factors of great importance for the success of an adult literacy program. Without adequate follow-up activities the acquired reading ability will rather quickly disappear. Many failures have been noted because the new literates have been left without possibilities of applying and reinforcing their reading skills by reading books, magazines, and newspapers of appropriate difficulty and interest.

International and interdisciplinary cooperation on reading research

During the past decade investigators have recognized the need for interdisciplinary research. The problems connected with the development of reading ability are so multifaceted and touch so many different scientific areas that cooperation among researchers in various disciplines is necessary. Although few cooperative research projects have as yet been conducted, it is satisfying to note that in the practical work of diagnosis and treatment interdisciplinary teams are more and more common. Such teams include reading specialists, school psychologists, school physicians, child psychiatrists, and experts on eye, ear, nose, and throat diseases.

It is important in our explorations that we realize we are not alone. I want to underscore this fact and to urge that teachers of reading and researchers from various countries engage in cooperative efforts that cross national lines in cooperative efforts on a truly interdisciplinary and international scale.

There is certainly a great need, not only for special development and research centers within the field of reading in every country but also for special institutions and centers with facilities to distribute information

about research results and in such a form that this information can be read and applied in the classroom on an international basis.

A systematic pooling of the best ideas and techniques from all countries around the world seems to be reasonable with fruitful steps to be taken soon.

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Meanings in Reading

A CONSIDERATION of the voluminous literature in the field of reading reveals some surprising gaps. For decades, theorists, researchers, and teachers have stipulated that reading is not taking place unless the reader has assimilated meaning from the printed page. It is not necessary to enumerate the research which has investigated word recognition, vocabulary, and comprehension. Though the assumption about meaning is usually implicit, the findings of this research invariably have only oblique references to the nature of meaning in the reading act. Even our current attempts to dissect the reading process skirt this central question, for they focus on the cognitive activities which are involved rather than contemplating the parameters and dimensions of the final product. Yet, in the twenty-first century the historian attempting to label the dominant themes of philosophy, psychology, and language will, I am certain, recognize that such diverse thinkers as Wittgenstein, Sartre, Levin, Skinner, and Chomsky have been concerned with explicating the mysteries of meaning in their respective disciplines.

I hope this criticism of reading research and theory is not picayune. There are many excellent reasons why people in this field have not attempted to probe the infinite mental galaxies of meaning. The topic is too all encompassing and overpowering and yields little satisfaction in the provision of definite answers to baffling questions. Since the publication of *The Meaning of Meaning* (7), which forms a landmark in this field, the exploration of the nature of meaning evoked through the medium of print has been undertaken by literary critics, philosophers, and psychologists but not by reading researchers. If, however, one accepts the fact that the study of reading is an applied science, it still seems anomalous that we have assimilated knowledge with respect to every other aspect of the activity of reading and continue to ignore the focus and the pivot—meaning.

With this rationale for embarking on the topic of this paper, let me emphasize that I am overwhelmed by my presumption in undertaking it. I am inevitably faced with the problem described by a French

critic as evidencing "the art of not saying everything." All I can hope to do is to make some suggestions which will foster insights.

Many modern philosophers agree that words are not always capable of precise definition. Accordingly, I am going to avoid the pitfall involved in attempting to define "meaning." I shall assume we all have a generalized notion of that term.

Richards (*8*) writes, "We shall do better to think of meaning as though it were a plant that has grown—not a can that has been filled or a lump of clay that has been moulded." The characteristics of a plant, however, are defined by the nature of its genus, its species, and its growth characteristics. The parents of meaning are language and thought, but I want to concentrate upon the genus and species of reading. Space does not permit extensive discussion of those facets of linguistic and cognitive growth which must be taken into account in the teaching of reading.

It is a truism that the prime function of language is communication and that the two aspects—production and perception—are interdependent. Perception, of course, is the bedrock of reading, but for what we term "comprehension" to occur the reader must do more than focus upon language. He must also process the information gained from the stream of words. I wish, therefore, to examine some of the unique characteristics of language functioning and information processing in reading, aspects which are basic to understanding what is read in any language or the nature of the content of the ideas which are processed.

The nature of language in reading

Linguists have long given speech the primary place in language study. It is only recently that some linguists have begun to explore the differences between spoken and written languages. Abercrombie (*4*) makes some interesting comments upon the distinction among three kinds of speech—reading aloud, monologue, conversation—and indicates some of the possible sources of differences between the two modes of communication.

Joos (*3*) explores other aspects of the speech/writing contrast, and suggests five possible styles of language which range from "intimate" to "frozen." The frozen metaphor holds some interest since it was Goethe, the nineteenth century German philosopher, who first suggested that the printed work consists of "ideas frozen in print." One of the major problems faced in the field of reading is the discovering of ways in which the reader thaws out the ideas from print.

Although we can assert that reading matter (for the most part) is

not speech written down, the process of understanding language in its multiple modes is not easy. It would be equally wrong to think of speech and writing as being completely disjunctive. Obviously, there will be writing which depends upon the reader's supplying the appropriate intonation patterns, and there will also be speech which is fully explicit when it is written down. What we need to do is to think in terms of a continuum of different types of language and of the functioning of each type in the written and spoken modes.

Let us look more directly at some of these differences. The first major difference is in the set of signals. Every spoken language has a limited number of distinct phonemes, that is significantly different sounds. Written language using the alphabet attempts to assign different geometric shapes (graphemes) to record these sounds. One of the major common features of all languages is that a point to point correspondence between the phoneme and the grapheme is rarely possible. Pronunciation changes over space and over time so regional dialects do not correspond exactly to graphic representations. We also have ample evidence that pronunciation changes occur, albeit slowly from one generation to another. The English language is, of course, the extreme example: twenty-six different graphemes combine to give over 300 distinctive symbols relating to approximately 48 different sounds. In addition, written matter contains a limited collection of punctuation marks which attempt to indicate in a general way the rhythms of speech. Of major interest is the contrast between the small number of sounds in speech and the many ways of manipulating rhythm, intonation, stress pitch, and juncture with the large number of characters and the few ways of indicating the other signaling devices of speech in printed materials. Many problems also arise in reading because the latent clues to meaning in reading are as hidden. The unsung melodies of any speech have often to be supplied consciously or unconsciously by the reader in order to ascertain what meaning is intended.

The conventions of written language, such as the spaces between words, the periods at the end of the sentences, and the interrogation marks indicating questions, are learned early as a print sign. Unfortunately, however, these cannot always be implied by the child from what he says or inferred from what he hears. Words are not always separated in speech, and speech is often fragmentary and full of incomplete sentences. Thus, there are a variety of ways whereby we attempt to compensate in writing for the features of speech. Yet, in spite of this variety, the reader must supply many of the omissions.

There is also a great amount of repetition and redundancy in speech. The listener needs to keep up with what is being said. In speech, there

are frequently short bursts of easy fluency alternating with more halting passages in which the speaker is apparently attempting to organize the language before he can utter it. These pauses, which are often filled by odd words or noises, are frequent and sometimes lengthy in speech. An examination of speech tends to suggest that these occur where hard mental effort is required. Yet, they also serve another function from the point of view of the listener: that of having time to assimilate the ideas which he has heard. Written language, on the other hand, because it is primarily a visual medium and more permanent than the fleeting echoes of sounds which form speech, gives the reader time to ponder and provides the opportunity to go back, if necessary, and check on the information presented. Thus, written language tends to contain not only a greater concentration of information but more complex concepts. Written language is usually more complex with deeply embedded ideas since the language itself becomes more involved as the ideas which it is attempting to convey become more intricate. Thus, in all languages we find certain types of language formations much more prevalent in the written rather than spoken word. The following are found more frequently in written language: passives, variety of tense formations, genitive structures, postpositional noun modifiers, nominalizations, verbalizations, variety of adjectival phrases, variety of subordinate phrases, phrases in apposition, logical and subordinate connectives. One of the reasons for this greater variety of formations in the written language is to avoid monotony. The ways we have of making ideas and sentences hang together also differ in the two modes. This aspect of style is usually called cohesion. In speech, rhythm and intonation seem to carry much of the burden of making a text coherent. In the written language, however, we frequently have to use more connectives and complex structures to attain this unity.

The differences in the human reception of ideas from print and speech occur because of the physical properties of vision and hearing. The speed of light is many times faster than the speed of sound. Thus, the accomplished reader can receive ideas visually from print much faster than he can assimilate them auditorily from speech. This aspect further accounts for the increased density of concepts presented in reading material.

Characteristics of information processing in reading

The basic input of the oral coding consists of phonemes which have distinctive acoustic features while that of the written coding system consists of graphemes which have distinctive geometric forms. Yet in

both oral and written language the common feature allowing effective understanding is the use of higher order units of more than one word. This structuring or "chunking" of groups of words operates in both speech and writing. We have seen, however, that the listener is aided by the signals of pitch, stress, intonation, junction, and gestural signs and the knowledge of the situation mutual to the speaker and listener.

The reader has to structure and organize the input with many of the speech structuring signals absent. Yet somehow the reader synthesizes this visual array of geometric forms—the black squiggles on the printed page—into a cohesive entity. But the manner in which the reader does this work remains somewhat obscure.

Goodman (*2*) suggests that the reader approaches the page with conscious or subconscious hypotheses, which are continually tested and, then, accepted or rejected. Smith (*9*), on the other hand, applying more traditional linguistic and information theories posits that the reader's main activity is the reduction of uncertainty. As reading progresses, uncertainty about language and meaning is reduced. Venezky and Calfee (*10*) suggest that the ideal, competent reader uses a scanning process and a cue sampling procedure. This procedure must be directed by the reader's linguistic facility, his general knowledge, the nature of written materials, properties of the real or imaginary world, language habits, sentence types, and the immediate knowledge gained from the material being read.

In our latest attempts to delineate the unique nature of the reading act, my students (*4*) and I, have been investigating the application of the theories of Neisser (*6*) and Luria (*5*) to the reading process. Neisser has suggested the model of analysis by synthesis processing of oral language. That is that recipient of language is involved in a continuous and continuing process of analyzing and synthesizing which, in turn, leads to further analysis. These processes are extremely rapid and difficult to detect. Luria through his work with aphasics, found that certain cortical lesions caused impairment of one or the other of the information processing strategies of simultaneous and successive synthesis. Using a variety of experimental techniques and methods of measurement, we have verified that both these types of activity occur in reading comprehension. It appears that there is simultaneous consideration of one or more words which perform syntactic or lexical functions or both, but that there is an hierarchical process by which lower level units are synthesized into higher level units. Thus all readers use simultaneous and successive synthesis at some points. There appear to be simultaneous synthesis at the sentence or phrase level and successive synthesis at the discourse level, and the former appears to be antecedent

to the latter. However, there is some evidence that some readers never or rarely achieve simultaneous synthesis, but continue to engage in successive synthesizing activities—the word-by-word readers. Such readers comprehend poorly in spite of adequate vocabulary and linguistic associations. We have not yet explored the reasons for this difficulty.

Another feature of information processing which is unique in reading is the nature of the feedback. For the reader the feedback is internal. In most speech situations there is a reciprocity either of language interchange or gesture. In reading, though there is an interchange between the long term memory and the input, the reader has no external means of checking the information. The normal operation of feedback which controls the next step in thought or action is missing. This fact creates many difficulties for both the reader and for the author. Some of these have been explored in reading comprehension, but our ignorance of the various limitations and strictures which result from this lack of feedback remains extensive.

Marshal McLuhan was one of the first to discuss another essential feature of print—its linear quality. While all other media present multiple perspectives, print is linear in form and format. The physical impact of print in line sequence is important, and this aspect is true of the printed form of any language whether we read from left to right, right to left, horizontally, or vertically. Our recent research has also verified that in the spoken mode ideas are usually presented in a "spiral" fashion rather than a straight linear one.

Occasionally, one detects perhaps a derogatory tone in McLuhan and his disciples when books are dismissed as merely linear. I would, however, maintain that this linear quality is the greatest contribution print has to offer. Patterns created by lines are numerous, almost infinite—but lines indicate relationships. Basic to man's quest for knowledge is his desire to understand relationships among phenomena, people, ideas, and visions—to try to understand the reasons "why." It is books which are the storehouses of individual and communal understandings of these relationships. Print with its linear form is still the best way of communicating these relationships over time and space.

The type of thinking triggered by the printed word is not only linear but is unique in other ways. The author attempts to communicate his thoughts but their adequate reception by the readers will be helped or hindered by a great many factors which research in reading comprehension has revealed. Though the reader may have to interpolate and extrapolate ideas, his interpretation must be rooted in content presented by the author.

Conclusion

Space does not permit us to explore all the implications for the teaching of reading, but it is obvious that there are many. There is ample evidence that children develop abilities to understand syntax and semantics as well as the underlying cognitive activities sequentially and at different times during their school years. Since reading is still the key to much learning in our schools, perhaps we should also be researching what reading does to children. Studies so far have emphasized the negative side—what happens to children when they cannot read. Perhaps now we should be concentrating on discovering how reading aids linguistic and cognitive maturity and enlarges feelings and understandings of the world in which we live.

Yet if meaning is a plant, our examination of its genus and species would suggest that the reading tree needs to be carefully tended and the right conditions for growth assured. Unlike other aspects of language, it is the schools and teachers who have prime responsibility for succoring the growth of this reading tree of knowledge. Let us all determine to be good gardeners.

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Critical Reading

NEVER BEFORE have people been confronted with so many controversial issues and opinions and information from so many sources. Mass media—newspapers, magazines, radio, and television—as well as books strive not only to inform the public of local, national, and world events but also to interpret these happenings. Great effort is often made by the media to sway public opinion and to influence people to vote for certain candidates, to act in specified ways, to desire certain products, and to accept a particular ideology, philosophy, platform, or way of living. It is healthy to have different points of view, but students and adults must know how to read and think critically to understand the issues intelligently.

One of the greatest challenges to modern education is that of preparing the student for his role as an enlightened citizen of the world. Chase (*3*) points out that the conditions confronting us in the immediate future require the application of knowledge and wisdom rather than of force and that the values cherished by thoughtful men are more endangered by two kinds of illiteracy than by the atomic bomb and its successors. Here, he refers not only to the inability to receive and to express ideas through reading and writing but also to the inability to relate the content of verbal communication to events which at each moment are shaping the future. Chase calls the latter situation "higher illiteracy."

Definition of critical reading

Writers frequently discuss critical reading and describe their experiments without defining their concept of critical reading. When the term is defined, a wide range of interpretations is given. For example, the term *critical reading* is sometimes used synonymously with creative reading, problem solving, thinking while reading, depth of comprehension, or logical thinking. Gans (*7*) restricts the definition to

distinguishing the relevant from the irrelevant in problem solving. Others (*12, 21*) contrast *literal meaning*, defined as a low-level type of interpretation for explicitly stated information, with *critical reading*, described as a higher level of interpretation than that of literal reading.

In contrast to these definitions is the one by DeBoer (*6*), who says that critical reading involves searching for relevant materials, evaluating the data, identifying and comparing sources, and synthesizing the findings. Required are the capacity for suspended judgment, the interpretation of the writer's motives, a sufficient background of knowledge to provide a sound basis for judgment, and appropriate criteria in the mind of the reader.

Robinson (*17*) defines critical reading as "the judgment of the veracity, validity, of worth of the ideas read, based on sound criteria or standards developed through previous experience . . . . The judgment of each requires previous experience with the specific kinds of materials or knowledge of the general area, which is organized as criteria or standards against which the ideas are projected and evaluated."

DeBoer and Robinson, as well as others, agree that critical reading is evaluative reading. Evaluation implies that there must be standards or criteria if the reader is to make a judgment. Criteria are based upon the reader's previous knowledge of and experience with the ideas being presented by the author. The definitions of DeBoer and Robinson are basic to this paper.

Critical reading is often linked with critical thinking. Russell (*19*) considers critical reading to be the application of critical thinking to the reading process. He describes critical thinking as a three-factor ability which includes an attitude factor of questioning and suspended judgment, a cognitive or functional factor, which involves the use of methods of logical inquiry and problem solving, and a judgment factor of evaluating in terms of some norm or standard.

Critical reading, then, involves thinking critically while one is reading and can be considered to be one kind of critical thinking. Reading is the major way in which thought is promoted for many people.

Status of research in critical reading

Several reasons can be given for the paucity of research in critical reading. Both critical reading and thinking are complex areas and not easily nor quickly researched. Until recently, critical reading did not receive the emphasis that other areas of reading did by either teachers or researchers. Perhaps, neither group gave importance to critical reading.

In critical reading, as well as in teaching, the greatest deterrent to research has been the lack of adequate evaluation instruments for determining the status and growth of students in this important area of reading. Standardized reading tests overemphasize literal comprehension and provide no basis for assessing the ability to read critically. Perhaps the fact that students rank high on these tests is one of the reasons teachers do not see the necessity for teaching critical reading.

In the absence of critical reading tests, it has been necessary for researchers to develop their own. These tests have had reasonably high reliability, but there is some doubt about their comprehensiveness and validity. Since it was necessary for each researcher to develop his own tests in harmony with the purpose of his experimentation, there appears to be little agreement concerning the types of items or behaviors that are evaluated.

Other problems prevalent in critical reading research, according to Wolf (*22*), include the following: absence of randomization that may seriously affect the validity of the results, experimenter bias as evidenced by the fact that investigators sometimes teach the experimental classes themselves, lack of control of the teacher variable, and incomplete reporting. The foregoing factors as well as the lack of a consistent definition of reading and of evaluation instruments detract from the quality of the research in critical reading and make comparisons of different studies difficult.

Critical reading skills

A foundation in the basic reading skills is necessary if critical reading is to be developed. Students must be able to recognize words, to know their meanings, and to understand the materials they read at their reading levels. One cannot evaluate if he does not understand the material.

Glaser (*8*) and Nardelli (*16*) identify moderately high relationships between general comprehension ability and skill in critical reading or thinking; Wolf, King, and Huck (*23*) find a high relationship between general reading ability and critical reading. Gans (*7*) recognizes that critical reading is comprised of several abilities but that general reading ability is the most important factor. Maney (*13*) and Sochor (*21*) report that specific critical reading skills are not appreciably related to literal comprehension. McCullough (*14*) finds a positive relationship among the comprehension skills of main idea, facts or details, sequence or organization, and creative reading which includes drawing inferences and conclusions, passing judgments, and seeing relationships. However, the

degree of the relationship does not justify predictions of scores on one type of comprehension from scores on another type. It cannot be assumed that a high score in reading comprehension will assure high achievement in critical reading.

In their development of an operational definition of critical reading, Wolf, King, and Huck (*23*) prepare and validate a list of skills identified with critical reading. For example, for the analysis and evaluation of informational and persuasive material, they list skills which could be classified as semantics in writing, logic in writing, and authenticity in writing. The list is too extensive to report all of the components here but should be consulted by those who are interested in knowing more about critical reading skills.

Factors related to critical reading ability

A limited amount of research has been done on factors affecting students' abilities to read critically. Educators have listed many factors which they consider to be related to critical reading such as attitudes, intelligence, general reading ability, sex, age, background experience, socioeconomic background, personality, and creative thinking abilities. The research concerned with two of these factors—intelligence and attitudes of the reader—is reviewed here.

Intelligence. The opinion that intelligence, as measured by tests, is highly related to critical thinking and critical reading is often expressed. Russell (*19*) in his review of the research of the relationship of intelligence and critical thinking refers to the study by Glaser (*8*) in which the coefficient of correlation is .46 and to others in which the coefficients of correlation are lower. Others (*5, 12, 16, 21, 23*) obtain somewhat higher coefficients of correlation between their critical reading tests and measured mental ability. The discrepancy of the foregoing findings may be due to the nature of the tests, the critical reading abilities being tested, and the lack of critical reading developments of the subjects.

Glaser (*8*) found that subjects who had measured IQs of less than 100 were among those who profited most from instruction in critical thinking. Wolf, King, and Huck (*23*) found that at all intelligence levels the experimental subjects performed better after instruction than their counterparts in the control groups.

Although critical thinking and reading skills are facilitated by intellectual maturity, all levels profit from instruction and can learn to read critically. Teachers should not neglect this kind of instruction for slower learners.

Attitudes. The effect of the attitudes of the reader on his ability to

read critically has been studied by a number of researchers (*4, 9, 15*). These studies show that the attitudes of subjects at different grade levels affect their comprehension of the materials being read, especially their critical comprehension. The foregoing appears to be true regardless of the topic being investigated.

At the eleventh grade level, McKillop (*15*) explores the relationships between the subjects' expressed attitudes and their responses to different kinds of questions on reading passages dealing with the same topic. Attitude in this case had little effect on responses to questions of specific fact, but when judgment, evaluation, and prediction were required in the responses to questions, attitude was a very significant factor. The investigator suggests that experience in evaluation should be provided from the primary grades through all of the educational levels especially when pupils feel strongly about a topic and when their value judgments may become a factor influencing their responses.

Both Groff (*9*) and Crossen (*4*) find at given times that biases may affect a person's ability to read a passage critically.

Kemp (*11*) concludes that under favorable conditions students with open minds show greater improvement in critical thinking than those with closed minds. He suggests that provision should be made early for a learning environment which encourages open-mindedness since dogmatism is learned.

Since attitudes, biases, and values of readers affect the critical interpretation of materials read, teachers need to help students learn how to understand and control their attitudes and to realize the effect they may have upon reading.

Critical reading instruction

The ability to read critically appears not to develop for students unless attention is given to its development. The limited number of studies show that students at different educational levels can obtain facts from their reading but fail to go beyond this literal comprehension to evaluate and draw conclusions from these facts. Gans (*7*) reports that elementary pupils were able to make satisfactory grades in reading and to obtain satisfactory scores on standardized tests but were unable to differentiate pertinent from irrelevant materials when problems in securing information were presented. The fourth, fifth, and sixth grade subjects in the study by Davis (*5*) were significantly more capable of identifying statements of fact than of identifying statements of opinion.

At the tenth and twelfth grade levels, Rogers (*18*) compares the reading performance in an undirected reading situation with one encom-

passing a school assignment where questions about the selection were anticipated. When students were asked to tell what they thought about an article, they responded with the content of the article. Furthermore, they appeared to have acquired skills in answering questions rather than critical reading skills since the cue for the operation of the skill was the need to answer a question rather than the actual reading of the article.

The available evidence indicates the necessity for instruction and for the development of independence in critical reading.

The extent to which critical reading is taught in the schools of the United States is one of the facets of the two studies by Austin and others (*1, 2*). Perhaps the situation in other countries is similar to that in the United States. These researchers conclude that the general picture of critical reading instruction is not encouraging. More than one-half of the school systems report that they give either little or no time to teaching critical reading skills in the primary grades; almost one-third state that they give little or no instructional time to these skills in grades three and four (*1*). Although teachers were uncertain about which materials and techniques to use, they consider critical reading to be an important goal of instruction (*2*).

The results of available research show that critical reading or thinking can be taught profitably at different educational levels (*8, 12, 23*). Although each researcher uses a different approach, all report different degrees of success in the instruction at different grade levels. The foregoing report substantiates expert opinion that instruction should begin early and should continue at all educational levels.

Sometimes there is a tendency to postpone teaching critical reading until the later educational levels, but authorities recommend that this instruction be started in the primary grades. Preschool children are capable of critical thinking (*20*). To be sure, the level of criticism is quite simple on the topics with which they have had experience. From the beginning, children can be taught to accept or question what they hear and read and to compare and contrast as soon as they are able to identify similarities and differences in ideas, events, or characters.

McCullough (*14*) compares the abilities of primary grade children to answer questions of detail, main ideas, and sequence with those requiring the critical reading skills of drawing conclusions, passing judgments, and seeing relationships. She finds significant relationships between both sets of skills. A more recent study (*23*) concludes that children in grades one through six can learn to read critically. Furthermore, this instruction in critical reading does not interfere with elementary school children's growth in other basic reading skills.

Researchers have used various techniques in the teaching of critical

reading. Propaganda analysis has probably been investigated more than any other technique. In 1937 the Institute of Propaganda Analysis (*10*) identified seven propaganda techniques: bad names, glad names, transfer, testimonial, plain folks, card stacking, and bandwagon. Even though sixth grade subjects were able to identify propaganda techniques, Nardelli (*16*) states that his study does not suggest that they were able to resist propaganda in the various forms. An item analysis of his test reveals that all the devices are not equally understandable. The easiest for Nardelli's subjects are the plain folks and testimonial techniques, the most difficult are card stacking, glittering generalities, and transfer devices.

The teaching of propaganda techniques is only one segment of critical reading. Because of the ease and apparent popularity of this teaching approach, it is considered by some to be all there is to critical reading.

The most extensive study in the teaching of critical reading is the one reported by Wolf, King, and Huck (*22*). Four classrooms at each grade level from one through six, two experimental and two control, participated in the study. Critical reading skills were taught in the experimental classes; instruction in children's literature was emphasized in the control classes. Many of the findings of the study have already been mentioned.

This study clearly shows the importance of the questions asked by the teacher. Experimental teachers asked significantly more analyzing questions throughout the year with more clarifying questions in the fall and more evaluating ones in the spring; the control teachers asked more interpreting questions throughout the year with more applying questions in the winter and spring. The materials and the teacher training may have been responsible for the kinds of questions the teachers asked. The researchers conclude that the kinds of questions teachers ask influence the depth of pupils' thinking. In both groups, the teachers' questions on specific facts elicited guessing and literal responses; analyzing and evaluating questions produced responses of hypothesizing and evaluating. The subjects who received instruction in critical reading gave more evaluation responses and fewer literal, memory, and inferring responses than control subjects did.

At the high school level, Livingston (*12*) is concerned with a comparison of the changes in the critical reading of subjects who received instruction in general semantics with those who did not receive this instruction. English teachers devoted two class periods per week for five weeks to instruction in selected principles and techniques of general semantics. The results show that the experimental group made a significantly greater gain even though the instructional period was short.

The foregoing studies provide some insight into instructional practices. Teachers can gain other help for teaching critical reading by referring

to a number of articles of a practical nature and can conduct their own experiments.

Educational implications

The results of research concerned with critical reading appear to have the following implications for education:

1. Provision must be made for teaching critical reading to all students at all educational levels. Research does show that critical reading can be taught and that students do not become critical readers without instruction.
2. At this time, no one technique appears to be superior to others. Of vital importance, regardless of the technique, are the kinds of questions the teachers ask. These questions appear to determine the kinds of comprehension and critical reading skills students achieve.
3. Opportunities should be made to guide students in understanding the role their beliefs, biases, and attitudes play in the critical interpretation of the materials they read.
4. A variety of materials is necessary for the development of critical reading. No single textbook is sufficient.
5. Because published critical reading tests are not yet available, classroom teachers will need to prepare their own tests. Since standardized reading tests do not include a sufficient number of items to determine whether students read critically, this step is necessary.
6. School systems should make an effort to include the development of critical reading as one of their objectives. Consideration should be given to freedom of expression. More time is needed and should be allotted for this type of instruction. It may be necessary for schools to have inservice workshops on this topic since teachers do not always know how to proceed with the instruction. Guides for their own critical reading should be given since teachers themselves may not know how to read critically.
7. Teacher-training reading courses should include ample instruction in teaching critical reading.

Concluding statement

Since an enlightened citizenship of the world requires critical readers, it is urgent that schools provide opportunity for students to develop and use ability in reading critically. Although research has been done and articles have been written about the teaching of critical reading, much

more work in this aspect of reading needs to be done and to be shared with others.

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Reading in the Subject Areas

THAT READING should be taught in the subject areas is an obvious assumption. Competence in reading is a tool for obtaining information from the subject areas for both pleasurable as well as practicable purposes. These purposes compel the student to focus on content instead of on skill. The reading process as applied to the subject areas comprises a broad body of techniques which the reader uses to get information and understanding. The subject areas provide the content in which the techniques are applied. Indeed, this arrangement is logical. The function of the teacher is to provide instruction in the techniques of learning the content as a means of achieving mastery in each subject area. This theme will be expanded by 1) noting the need for teaching reading in the subject areas, 2) discussing the premises for fusing reading instruction with the subject areas, 3) listing the basic common reading skills pertinent to each subject areas, 4) applying general principles of learning for guidelines in implementing the reading skills to the subject areas, and 5) describing some basic classroom procedures.

Need for teaching reading in subject areas

Three arguments that point up the need for fusing instruction in the reading skills with the subject areas come readily to mind. One, a basic law of learning, maintains that a skill is best learned when the learner has the need and opportunity to use it. The factual prose of each subject area requires the use of skills and techniques. The student's competence in these skills and techniques most often determines whether he achieves mastery in the area. Obviously, as the student studies the material in each subject area, he will need to know how to use the skills of reading; and opportunities to apply them are many. Second, the nature of the reading process shows that the skills can be improved constantly. The skills of reading are similar to the skills of any other activity. There is no ceiling on the refinement of their use. Constant practice in applying the skills

leads to the student's increased familiarity and competence with them. Of course, the condition we wish to achieve with the student is his total attention to content. The familiarity with and the competence in the skills should become as automatic as possible. Third, the growing vastness of each subject area requires his competence in techniques of acquiring information, not just mastery of the content. Predictions about the future responsibilities of education over the next thirty years point dramatically toward the need to provide assistance to students in how to obtain information. The editors of *Education*, U.S.A. have made startling pronouncements about the future growth in the scope of knowledge. They say that it will double in many areas, and that instant communication will lead to self-learning and to continued learning centered at home (*1*). Further comment about the increase in the scope of knowledge was made in the *Long Island Press* on May 22, 1968. In the article "Educators Preview Year 2000," the writer states, "Subject matter will emphasize general principles and method of thinking and learning rather than specialized information that quickly becomes outdated (*2*). Indeed, instruction does focus its emphasis upon the principles and methods of thinking and learning. Guidance to the student in how to obtain information and in how to use it is of paramount importance.

Premises for teaching reading in subject areas

Five basic premises provide the philosophical base for teaching reading in the subject areas. They suggest as well the general direction for the incorporation of reading instruction into subject matter instruction.

Premise 1. Reading in the content fields is part of the total school reading program. Reading in the subject areas is important, though it is only one part of a total school reading program. Other parts of the program include use of the school library, classes in reading to be elected by students who wish to sharpen their reading skills, and classes for students who need remedial instruction. These four aspects of a total school program implement the dual considerations for teaching a skill—skill instruction and the application of the instruction through wide reading.

Premise 2. All teachers are responsible for helping students read their specific subjects. The teacher who has the background and expertise in a specific subject is the one best qualified to adapt the reading skills to it. Reading instruction is aimed toward helping the student get from the language used by an author the information pertinent to the subject. Obviously, content has to be learned. Therefore, the mathematics teacher, for instance, is the best qualified person to extract the mathe-

matics content from the language used to express it and to show the student how to do so.

Premise 3. The focus of teaching is changed from teaching content to how to read and understand the content. This premise simply means that reading in the subject areas is not separate from the content but an intrinsic part of it. The classroom procedures incorporate the techniques which show how information is obtained. Teachers are involved, thereby, in showing students how to use printed materials which contain the factual data. In this process, the factual data are learned since the skills and techniques of reading must be given substance by the content.

Premise 4. Teaching reading in the content fields is fused with the teaching of content. Material with content must be used when the pertinent skills are to be taught. In the subject areas, each subject determines the content, but in the process of teaching the skills and techniques, content is learned. The two are accomplished at the same time.

Premise 5. There is a commonality of skills in all content subjects just as there is a pertinent application to each subject area.

The basic skills of reading apply to each of the subject areas but with a slight difference to each as the style of writing differs. For instance, the type of writing used in stories is different from that used in the highly detailed factual prose of science. The student may learn how to find the main idea of a story but may not know how to use the same skill in scientific writing.

Reading skills pertinent to subject areas

Let us now turn our attention to the common reading skills and note their application to each subject area. All subject areas require the application of the word-recognition skills involving the use of the word in context; the structural analysis of words that include inflectional endings, prefixes, suffixes and compound words; phonic analysis with specific emphasis upon syllabication; and the effective as well as the efficient use of the dictionary or glossary. The basic comprehension skills are applied as the student reads for main ideas, pertinent details, organization of data, and sequence. Word meaning is a major skill in each subject area since each has its own specific technical vocabulary as well as general words used with a meaning appropriate to a specific subject area. Reading-study skills apply to each area as the student determines his purpose and style of reading, uses textbooks and library skills, and takes and organizes notes. Interpretative skills apply to each subject area and encompass both interpretation as well as critical reading. Interpretation involves drawing conclusions, making generalizations, inferring, noting

relationships such as cause and effect, and comparing and contrasting. Critical reading applies as the student evaluates the content for accuracy, inclusiveness, bias, and the author's intent. Reading appreciation applies to each of the subject areas as well. Here the student reads to apply the information to his own experiences. Indeed this may be the ultimate goal of much reading instruction since the student should be reading for both information and enjoyment in relation to himself.

Though the reading skills do apply to each and all subject areas, there is a difference in how the student may apply them. The nature of the material—its style of writing and its compactness—and the involvement of the skill with the content require instruction of the skills in each area. Also, the nature of the material in each subject area regulates the emphases each skill is given. These emphases differ among the subject areas.

In English classes the type of material for students to read is, in the main, narrative and descriptive. It is often fictional. The setting, mood, and action of a selection require interpretation and an analysis of how the author has used words and action to create a picture or feeling within the reader. Much English material is about the human condition involving man's relationship to other men, to himself, and to natural and cosmic forces. Therefore, the skills of interpretation and appreciation are emphasized. Questions to students regarding their reading selections of literature may be the following:

How has your imagination been stimulated?
Is the story true-to-life as you know it?
Does it make clearer your own experience?
Why do different actors get different interpretations?
What is the author's mood, his intent?

In the social studies the student reads informational prose in which he must see the author's organization of data. Skill emphases in the social studies would include vocabulary and interpretive reading involving the sequence of events; cause and effect relationships; and time, place, and space concepts. The historical accuracy, an aspect of critical reading, as well as the author's bias and an analysis of techniques of propaganda needs to be noted and analyzed. Special attention must be paid to graphic materials such as maps, cartoons, and graphs.

In science, the student is faced with material unlike either that found in the English classes or in the social studies. It is highly intense and packed with important detail. This condition requires that he be able to organize the information; i.e., to note the main ideas and the related pertinent details, to follow the detailed explanation of a process, and to classify ideas—in short, to sort them into a logical order. Emphasis is

also required in interpretative reading through his ability to note the relationship among facts, to see cause and effect, to apply laws and principles, and to formulate logical and accurate generalizations. Detailed and highly accurate reading is required for following directions in the conduct of experimentation. Formulas and equations, especially in the upper levels of science, present the student with a highly abstract type of reading in that there is a symbolic representation of sentences which in turn are language symbols for thought. Finally, the science areas have a great number of technical words and general words used technically. The emphasis in science is upon slow, thoughtful reading requiring precision and analysis in the problem-solving approach.

Mathematics is quite similar to the science area in the emphases placed upon the reading skills. The student has to be able to follow the steps of an explanation of a process which also involves concepts. Mathematics has a huge vocabulary, both of technical and nontechnical terms. One area of confusion, it seems to many students, concerns words which indicate process in relationship such as *than*, *of*, and *increased by*. In addition, the students need help in how to read equations, formulas, and tables. The printed material in mathematics has extreme density which requires a slow and meticulous manner of reading. Except at times in the science area, the student does not meet material of this nature in any other subject area.

The four academic areas, broadly included here, are not the only subject areas. Such subject areas as business education, homemaking, industrial arts, foreign language, and others have emphases of skill application for which the student must be alert. For instance, classes in the business education genre can relate closely to the social studies (business law) and to mathematics (business arithmetic). The measurements and following of directions required in both home economics and industrial arts relate closely to either mathematics or science.

The common thread pervading all of the subject areas is language and the student's facility with it. The understandings of a subject are interwoven with and grasped largely through the symbolism of language. It could be assumed, therefore, that the teacher of each specific subject is in actuality a language teacher. He is the teacher of only one use of language, however, and that is how it is used for communication and thought in his subject. Proficiency in the language used is the matrix of comprehension in each of the subject areas.

Basic principles of procedure

We have reviewed, thus far, the reasons why reading should be fused with the subject areas, the philosophical premises, and, quite broadly,

the skills pertinent to the major subject areas. What does all of this mean for the classroom teacher?

Competency in language comes from wide experience with it and from a wide background of experience. The key word is *background*. The student can read about a subject with understanding only when he has an adequate fund of experiences. Only then does he have a frame of references for understanding, interpreting, and evaluating the new material he is reading. Thus, the first principle is indicated; whenever the student is to read new material, the teacher's responsibility is to provide adequate experiences, either actual or vicarious, before the student reads.

A second principle of procedure is to assist the student in relating the new material to his own experiences. Usually, if the student sees the value of the information and how it affects him, his attention is alert and his interest is fired. Students today want to see the relevance of their learning, and the teacher's role is to help them to do this—to relate the new material to their own lives.

The process of discovery stimulates learning which suggests the third principle of procedure. The student can be lead into the process of discovery by reading with questions in mind. Before the student reads, the teacher will need to evolve purposeful questions with the students.

Fourth, classroom procedures must enable the student to be successful. We must remember that success begets success and the desire to know or do. Teachers must be alert to the level of the reading competency of each student and the required level of the instructional materials. Proper adjustment will need to be made. Also, skill instruction, the know-how techniques, must be provided.

Finally, the student should be encouraged to take initiative in and responsibility for his own learning. To help him in these tasks, the student must be informed about the reasons specific skills are being studied. He should become informed about his reading strengths and weaknesses and the essentials of the reading process so that he can realize why specific procedures and practices are being used. Then, he can begin to assert self-responsibility and independence.

Suggestions of specific procedures

We have already suggested some procedures to follow in the classroom before the student reads. One of the basic procedures is to provide adequate preparation to the student for reading. Thus, the teacher helps the student to read an assignment with more facility and effectiveness by 1) investigating and expanding as necessary the student's background of information, 2) previewing the material with the student, 3) explaining

basic concepts which are usually represented by specific vocabulary, and 4) guiding the student to read with specific purpose questions in mind. Adequate time needs to be taken for the preparation stage. In fact, the teacher needs to ask questions which stimulate thought about the student's background in the subject. Sometimes students either do not realize what background knowledge they do have or see how the new reading ties in with their own experiences. When previewing, the teacher can ask questions which may help the student to remember some related information. When this work is done, the student feels more familiar and comfortable with the new information. The prospect of success is heightened.

A second specific procedure is concerned with judicious and skillful questioning which can emphasize the comprehension skills the student needs. The teacher should correlate his questions according to the reading skills. If he wishes to teach the student how to get the main ideas, his questions should probe for the main idea. If his purpose is to help the student learn vocabulary, his questions should be concerned about word meanings and concepts. The teacher must give thought to each lesson in order to be sure that his questions concomitantly emphasize the understanding and skills he thinks are necessary. Also, these questions can serve a diagnostic function. The teacher will be able to ascertain from each lesson how well the students, both individually and collectively, are able to respond to the questions. If the questions are identified in accordance with the reading skill needed, the need for further instruction in the skills can be noted.

Summary

What has been proposed and described here is amazingly simple and considered a mark of good teaching. To fuse the reading-study skills with content is not a profound idea nor a new one. One must be as concerned with reading skills as with content and must have a fusion of the two. A wholehearted commitment and a meticulous and comprehensive plan into the fusion of skills and subject matter will result in greater student competency and independence.

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Flexibility and Speed in Reading

I stood near a bookcase a few feet away from the table at which Danny was sitting, and I watched him read. His elbows were on the table, and he held his head in the palms of his hands, the fingers covering his ears completely, his eyes staring down at the book. Occasionally, the fingers of his right hand would play with his earlock, and once they stroked the tufts of sand-colored hair on his chin for a few seconds, then went back to the side of his face. His mouth was slightly open, and I could not see his eyes; they were hidden by the lids. He seemed impatient each time he came to the foot of a page, and he flipped the page with a quick gesture of his right hand, wetting the forefinger with his tongue and turning the page by pushing upward with the finger against the lower right-hand corner, the way one does a page of Talmud—except that with a Talmud the left forefinger usually pushes against the lower left-hand corner because it is read from right to left. He was reading with phenomenal speed. I could almost *see* him read. He would start at the head of a page, his head tilted slightly upward, and then his head would move downward in a straight line until he got to the foot of the page. Then it would tilt upward again and either move sideways to the right page or remain fixed in its upward position until the page was turned, and then start downward again. He did not seem to be reading from side to side but up and down, and, watching him, I had the distinct impression that he was reading the middle of the page only and was somehow able to ignore, or absorb without actually reading, what was written on the sides.

The Chosen—Chaim Potok

The absorption of ideas by reading had become for him a curious phenomenon: his eye could grasp in one glance seven to eight lines, with their meaning being apprehended by his spirit with a speed similar to that of his eyes; frequently only one word of the sentence was enough for him to extract the "juice."

Louis Lambert—Honoré de Balzac

Points of view

THE LATEST ATTEMPT to separate fact from fiction in the areas of reading rate and flexibility took place at a National Reading Conference session

entitled "Speed Reading or Efficient Reading? Directions for the Future." Exchanging views were Ronald P. Carver of the American Institutes for Research, Peter Kump of Evelyn Wood Reading Dynamics, Vearl G. McBride of Culver-Stockton College, Florence C. Schale of Northwestern University, and George D. Spache. The session was organized and chaired by Phil Nacke of Jersey City State College.

Carver (*5*) criticizes tests used to measure the comprehension of rapid readers. To illustrate his point, he performs a little study involving the instruments used in the only doctoral dissertation of graduates of the Evelyn Wood Reading Dynamics Program (*13*). Completed in 1965, the dissertation found no significant difference in the comprehension of a group of 25 "normal" readers and a group of 25 graduates of the Evelyn Wood program, even though the latter group read at 1,300 words a minute—three time faster than the control group—on the posttest. The measurements were based on lengthy passages in both fiction and nonfiction; such as *The Pearl* by John Steinbeck and *Principles of Sociology* by Ronald Freedman.

In his criticism, Carver compares the results obtained by the two groups with a third newly formed group which he calls *clairvoyant readers* and to whom he gave these directions:

> You are here today to learn a new technique in reading. This technique is called "clairvoyant reading." There are two problems associated with reading as it is done by most mature readers in this the 20th century. One problem is the sheer time involved in reading, and no one ever seems to have enough time. The other problem is the physical one of acquiring the information that you desire to read. That is, one often desires information that exists in a library, such as the Library of Congress, but it takes an extraordinary amount of time to go to the library to acquire the book or the particular information that one needs.
>
> Speed reading courses claim to have solved, for the most part, the time problem involved in reading since they claim that they can teach most anyone to at least triple his reading rate with no decrease in comprehension. However, the problem remains that speed reading seems to require that you have the pages of a book in front of your eyes before you can actually read it. Today I am going to attempt to demonstrate that people can learn to speed read a book that still remains in the library, and the reading will not be skimming. Furthermore, I expect that you can learn to read this way with little loss in comprehension.
>
> . . .
>
> Now, imagine yourself in the Library of Congress. You have been given the book entitled *The Pearl* by John Steinbeck. Imagine yourself turning to the center of the book. When I say "start," imagine yourself turning the pages of the book as fast as you can, reading each page at a single glance. Ready, start.

At the end of three seconds, the subjects were told to stop and open their eyes. Then, a comprehension test on what they had speed read clairvoyantly was administered. The test questions were exactly the same ones that Liddle used in his research.

Carver continued:

> Since you probably have never read clairvoyantly before, and with such speed, I will give you some brief advice about taking the test. You may think that you learned very little while you were reading this time. However, I feel quite sure that you learned somthing so I hope that you will not simply guess at every answer. Read each question and alternative answer, and spend a small amount of time trying to reason out your best answer. What you learned clairvoyantly on this first practice reading may be mostly subconscious. Thus, you should give your subconscious the opportunity to guide your answers. The only way you can do this is by studying each question carefully and then "let your subconscious be your guide." You may be surprised how many answers you can get correctly this way. I will grade your test tonight and tell you how well you did tomorrow.

He gave similar directions to the reading of *Principles of Sociology*. The comprehension scores for the three groups are indicated below:

Groups	Comprehension on The Pearl	Comprehension on Principles of Sociology
Normal Readers	82%	72%
Speed Readers	68%	68%
Clairvoyant Readers	51%	57%

Carver comments:

> Looking at the results . . . it can be seen that as poor as both tests are, the test on the fiction material is much better than the one on the nonfiction. Notice that the difference between the percent comprehension for the normal readers and the clairvoyant readers is 31 percentage points on *The Pearl* while the difference on *Sociology* is only 15 percentage points. Another way of looking at the differences between the two tests is to look at the percent gain in scores due to reading on the two tests. On the test questions for the fiction material, the Normal Readers answered correctly 61% more questions than the Clairvoyant Readers. On the nonfiction material, the Normal Readers answered only 27% more questions than the Clairvoyant Readers. Thus, it should not be too surprising that Liddle [*12*] did not find a "statistically" significant decrement for the speed readers on *Sociology* when he was using a "yardstick" that was so crude that it could hardly measure a difference between people who had read the chapter, normally, and people who had *not* read the chapter at all.

Carver discusses these and other matters in the August 1972 issue of *Psychology Today*.

Kump (*12*) agrees that research is needed to increase the precision of measuring instruments: "We need to explore new methods of testing and measuring to measure and test the new things that are happening in these days when we are doing things which have exceeded physiological limits." He also cites the need for further research on visual reading and on the maintenance of skills that have been developed through reading improvement programs. Kump uses the term "speeded reading" to refer to reading rates of up to "several thousand words per minute."

McBride (*16*) says that he taught high school students to read "in French and Spanish at speeds up to 35,000 words a minute." One student was able to read English at 50,000 words a minute. All 19 students could read "at 5,000 or more words a minute in all three languages. All scored 65 percent or better on teacher-prepared tests over different materials written in the three languages." Nine of the students had no prior training in French or Spanish. He reports comparable results with "other classes of a similar nature in junior high, but there was a much greater variance in the comprehension scores." The students read "from 90,000 words a minute in Spanish with 30 percent comprehension to 2,500 words per minute with 85 percent comprehension; and the scores in French were much the same except that the speeds were a little lower."

McBride tells of extraordinary successes with exceptionally young people, including a girl who had her fifth birthday "two days before she entered a rapid reading class . . . ." By the time she was five years, six weeks old, she "could read 6,000 words a minute on a second grade level . . . ." In a group of 18 second grade children, "the reading scores from second grade books ranged from 2,248 words a minute with 100 percent comprehension, to 34,788 words a minute with 90 percent comprehension." He says the lowest comprehension score in this particular group was 19,000 words at 40 percent comprehension.

In explaining his technique, McBride indicates that there are many ways to read:

> In a current reading class a fourth grade teacher reads across *both* pages in one sweep—*from right to left*. . . . A few seats from her is a school principal, who also teaches kindergarten. She reads the opposite direction, from left to right, but sweeps across both pages without moving her eyes down and up, or up and down. Another member of the class reads *up* the left hand page and down the right. All read with understanding, the kind we call "book report comprehension."

McBride also claims that there are many ways to hold a book. In a telephone conversation seven years ago, he explained that many rapid readers read with the upper left hand corner of the book pointing toward their stomach. About a year afterwards, in a question-answer period fol-

lowing a presentation at an IRA Convention, McBride demonstrated how one of his most able students read at an astronomical rate by holding a book over his head. There was some discussion as to how fast a person could turn the pages of a book.

Many of McBride's claims were questioned by David Wark of the University of Minnesota when both appeared on a nationwide television program aired by the National Broadcasting Company in June 1971.

Schale (*24*) describes a rapid reading series that she prepared for the Columbia Broadcasting System and which was telecast in Chicago in the fall of 1970 and in Los Angeles, New York, Philadelphia, St. Louis, and again in Chicago in the summer of 1971. The purpose of the series was "to motivate and instruct a general . . . audience in reading and skimming nonfictional materials of grades five to nine reading level equivalencies at rates up to 1,000 words per minute with good comprehension." Schale claims "three technological firsts . . . both for the fields of television and reading." These include the following:

1. circular tachistoscopic spans (increasingly larger spans of words were flashed on the television screens at rates up to 1/50 second);
2. paragraph timed exposure (projecting whole paragraphs, instead of line by line exposure, gradually decreasing the number of seconds each paragraph was exposed); and
3. stretch-reading techniques (accelerating the rates of reading during an article and then dropping back to a less frenetic pace for comfort and stabilization).

The television series also featured guests including Donald L. Cleland, past president of IRA, and a number of other specialists outside the field of reading education. Schale comments upon the audience reaction to the series, noting that "the change to reading paragraphs at flexible rates received the most favorable comment."

In an earlier paper, Schale described three rapid readers (*26*) and, more recently, she reports a "preliminary study" to investigate "the page-at-a-glance reading phenomenon in two gifted rapid readers who used only monocular vision . . ." (*25*), one being a fifteen-year-old girl from the Philippines and the other a twelve-year-old girl from the United States. The student from the Philippines, Schale notes, scanned "The Devil and Daniel Webster," a 6,000 word eighth grade article, in 4.45 seconds—at a rate of 80,000 wpm. "Not only could she perceive all the words on the seven by nine inches of print on each page, but . . . she absorbed both of the double columns per page *simultaneously*, averaging one fixation per page." She attained 100 percent on the ten comprehension questions. The student from the United States scanned "It's Not Too Late to Read," a

4,204 word "fourteenth-grade article, in 4.6 seconds. She therefore attained a rate of 54,825 wpm with 90 percent comprehension on the ten questions. . . . She, too, grasped both columns of a page in one vertical fixation, focusing her right eye near the center of the page." Schale reports that eye movements were recorded by equipment from the Department of Otolaryngology at the Illinois Eye and Ear Infirmary.

Nacke (*17*), in his introductory remarks, cites problems relating to definitions and measurement. He suggests language redundancy* as an area of research which may yield promising results and elaborates on this suggestion elsewhere (*2*). His review of research on reading flexibility appears in a paper (*18*) presented the preceding year at the National Reading Conference.

Spache, in his summary comments, criticizes "exotic interpretations of the act of reading."

> Reading is dealing with language. Each language has a typical structure in which words are used with certain functions. In each language, the word functions have become stabilized in positions with respect to each other. For example, in English, adjectives precede the noun they describe, while in Spanish, and often in French, adjectives tend to follow the noun. Similarly, sentences are arranged in planned order in paragraphs. To speak of dealing with these structures in any other than the normal is nonsense. It would be like claiming to comprehend the music on a tape played in reverse, or listening to a conversation in jumbled order.

Other studies

Promising research on reading flexibility is being directed by Earl F. Rankin at the University of Kentucky. His most recent work deals with intra-article reading flexibility (*22*).

Other promising work in the area of rate and flexibility is that of Maxwell who presents a model incorporating extrinsic and intrinsic factors underlying skimming (*14*). Another interesting reading model was presented by Zazzera (*32*) and recently Maxwell proposed a three-step procedure to describe and analyze the cognitive aspects of "skimming or high speed reading" (*15*). Called *skapa* (from a Swedish word meaning *to create*), the readers' three steps involve the following: 1) selecting and reporting word clues from a passage; 2) categorizing

* Language redundancy is "the difference between the theoretical capacity of any code and the average amount of information conveyed . . . . Redundancy is not synonymous with repetition . . . ." (H.A. Gleason Jr., *An Introduction to Descriptive Linguistics*. New York: Holt, Rinehart and Winston, 1961, p. 379). English and Spanish have high redundancy levels.

these clues—labeling or titling them; and 3) summarizing the main idea of the passage based on the clues and labels.

Maxwell describes each step in detail and suggests the potential value of *skapa* in investigating reading and thinking processes.

Other recent studies of interest include those completed by Bruland (*3*), Calfee and Jameson (*4*), Donk (*8*), Green (*9*), Harris (*10*), Johnson (*11*), Sticht (*29*), Tsukerman (*30*), and Whitman (*31*). For two sources containing further relevant references, the reader is referred to the 1970 revision of the IRA annotated bibliography on *Speed Reading* with more than 150 references, mostly research, and to a comprehensive article with 98 references, entitled "Speed Reading: Is the Present Emphasis Desirable?" in Nila Banton Smith (Ed.), *Current Issues in Reading*, available from IRA.

National assessment

The recently completed reading rate survey (*23*), a part of the National Assessment of Educational Progress, involves four age levels (9-year-olds, 13-year-olds, 17-year-olds, and young adults) and four regions of the United States (Northeast, Southeast, Central, West), with additional information relating to sex, race, parental education, and size and type of community. People at each age level read two passages. Space limitations permit only the essence of the findings at each level.

Reading Rate for 9-Year-Olds: Passage One—"Elmer and the Dragon"

> The results of the exercises assessing reading rate indicate that 9-year-olds in the upper quartile (75th percentile) read 160 words per minute, and 9-year-olds in the lower quartile (25th percentile) read 86 words per minute. The median reading rate for 9-year-olds was 117 words per minute. The range of reading rates on this passage was 0 to 570 words per minute. Slightly more than a third of the respondents read less than 100 words per minute, more than half read between 100 and 200 words per minute and very few (less than 5%) read at a rate of 250 words per minute or more.

Similar results were obtained on the second passage read by the 9-year-olds.

Reading Rate for 13-Year-Olds: Passage One—"An Expensive Experiment"

> The results on the first passage for age 13 show an increase in reading rate over the 9-year-olds. The 13-year-olds in the upper quartile (75th percentile) read 217 words per minute and the 13-year-olds in the lower quartile (25th percentile) read 133 words per minute. The median reading rate for 13-year-olds was 173 words per minute.

Only about 10% of the students read at less than 100 words per minute, slightly over half read between 100 and 200 words per minute and only about 5% read at a rate of 300 words per minute or greater. The range of reading rates ran from 0 to 701.

Similar results were obtained on the second passage read by the 13-year-olds.

Reading Rate for 17-Year-Olds and Young Adults: Passage One—"How to Bug a Mosquito"

Again, the results on the 17-year-olds and the young adults (ages 26-35) show an increase in reading rate over the younger ages (ages 9 and 13). The 17-year-olds in the upper quartile (75th percentile) read 237 words per minute and the 17-year-olds in the lower quartile (25th percentile) read 155 words per minute. The median reading rate for the 17-year-olds was 193 words per minute.

The results for the young adults are slightly lower than those for age 17. The young adults in the upper quartile (75th percentile) read 232 words per minute and the young adults in the lower quartile (25th percentile) read 145 words per minute. The median reading rate for young adults was 188 words per minute.

Only about 5% of the 17-year-olds and less than 10% of the young adults read at rates less than 100 words per minute. About 40% of the 17-year-olds and slightly less than 50% of the young adults read between 100 and 200 words per minute. For both 17-year-olds and young adults, about 5% of the respondents read more than 325 words per minute. The range of rates ran from 0 to 1039 words per minute for 17-year-olds and from 0-536 words per minute for young adults.

Comparable results were obtained on the second passage read by the 17-year-olds and young adults. The extremely rapid readers at each level "will be discussed in a later report."

The greatest significance of the 1970–1971 reading study, which involved nearly 100,000 participants, "is that it provides the first solid baseline data ever collected on the reading skills . . . of young Americans. . . . The next round of tests, to be made in 1975, will permit comparisons over time" (*20*).

State of knowledge

The current state of knowledge about reading rate and flexibility makes it impossible to separate fact from fiction. On the state of knowledge about reading *in general,* the reader might wish to consult the recently-completed review of 1,855 documents culled from a list of over 15,000 appearing in the literature between 1960 and 1970 (*7*).

The writers cited earlier have identified relevant areas of needed research relating to rate and flexibility (e.g., definitions, measurement, "visual" reading, language redundancy). They, and other writers, like Coleman and Miller (*6*) and Scriven (*28*), have expressed interesting ideas relating to the concept of measurement and other aspects of educational research. Relating to the concept of language redundancy, Smith and Holmes (*27*) have observed:

> Even the fastest reader is limited to about four fixations a second, which is the rate achieved by fourth graders. What distinguishes the skilled reader from the novice . . . is not . . . the amount of visual information that he can pack into a single fixation, but the amount of nonvisual information with which he can leaven the featural input and make it go the furthest.

They further note:

> . . . the response of the skilled reader to material which is unfamiliar or opaque is precisely that of the tyro with "easy" material—his "span of apprehension" decreases as he is reduced to word identification . . . rather than meaning identification. "Tunnel vision" in reading is not so much that the visual system is overloaded as that the visual information cannot be supplemented by redundancy.

They conclude:

> Many skilled readers can scan for meaning much faster than 1000 words per minute—a speed four times faster than the rate at which individual words can be identified. Yet the common "explanation" that the speed reader only reads "one word in four" cannot hold. A simple test will show that a passage in which three words out of four are erased is completely unintelligible. Far more efficient (and feasible) would be a system that instead of identifying one word in four would sample meaning information from most words.

Neisser (*19*) questions the concept of language redundancy to explain rapid reading. "Such an account of reading for meaning leaves something to be desired," he writes. "It suggests that a reader sees half the words on the page and infers the others. . . . But rapid reading is no more limited to 1200 or 600 words a minute than to 300." He discusses the similarities "between reading sentences without attending to specific words and recognizing words without attending to specific letters," pointing out differences where rapid reading is concerned.

> The end product of cognitive activity is not a bit of verbal behavior but a deep cognitive structure; not a verbalized name but a continuing silent stream of thought. Reading for meaning seems to be a kind of analysis-by-synthesis, a construction which builds a non-sensory structure. . . . Reading

> is externally guided thinking. Perhaps we should not be so surprised that it is so poorly understood; we may not understand it until we understand thought itself.
>
> In rapid reading, we attain a meaning without identifying individual words. In this respect it bears some resemblance to subception. . . . [However,] the conditions of subception are diametrically opposed to those which facilitate rapid reading. Brief, dim exposures lead to subception because they interfere with accurate identification, but they do not lead to rapid reading. In reading for meaning, we continuously take account of *new* constellations of words to construct *novel* thought processes. In subception, on the other hand, a *familiar* but indistinct constellation of letters leads to the verbal representation of an entirely *familiar* word. . . . Finally, the results of the subception experiments can easily be explained without leaving the framework of visual synthesis and verbal memory, while the existence of rapid reading apparently cannot be understood within this frame of reference at all.
>
> Until some understanding of reading for meaning is achieved, we will remain embarrassingly ignorant about questions that appear superficially easy. How fast is it possible to read? However dubious we may be about the extravagant claims of reading-improvement courses, we cannot refute them. Indeed, we cannot even *define* "reading" (as distinguished from "skipping," for example), let alone set a maximum to its speed. . . . For the present, rapid reading represents an achievement as impossible in theory as it is commonplace in practice.

In searching for greater knowledge about reading rate and flexibility, it might be good to pause a moment on one sentence in *The Chosen*. Toward the very end of the novel, Danny's father, a great scholar who had led a community of Hasidic Jews to New York City, is speaking to Danny's friend, Reuven Malter. He speaks of Reuven's father, a teacher and writer:

> In your father's writings I looked at his soul, not his mind (*21*).

That sentence opens up a whole new realm for imaginative exploration.

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Leading Children to Reading: An Austrian Venture

> I did not learn to read at school
> but through *Robinson Crusoe* and
> Stevenson's *Treasure Island.*
> —G. Hauptmann

IN THE YEARS following World War II, about 1950, when the immediate concern of satisfying hunger was no longer of utmost importance, a new intellectual movement began in Austria which dealt with children's reading material. It was combined to a great extent with the feeling that a new and better world could be expected only from a new and better youth. Reading and books were to help this youth find itself, be true to itself, and thus assist in creating a new world. As far as these expectations went, however, it soon became obvious that intellectual matters, especially with regard to reading materials for young people, were in a poor state of affairs.

In the schools reading was predominantly taught by stressing the technical skills, a method which for all the practice and discipline obscured the fact that only a few children actually used their reading abilities; i.e., read books which could offer them something. Most children did not read at all, and many read only inferior literature such as comic books which harmed rather than helped their intellectual lives. As insight was gained into the importance of reading and the sad state of the reading situation, efforts were made to promote books and reading, the development of which is traced here to the present day.

An American model was obtained from a speech by Siegmund Kennedy who lectured on children's books and book clubs. This model was altered to suit Austrian conditions: children's book critics, teachers, and librarians selected books recommended for the young by all the Austrian publishers. The effort was supported by teachers countrywide. Publishers and booksellers were asked to participate and cooperate

by offering their books at a 25 percent reduction in any bookstore. An agreement was reached and, for the first time in the history of children's books, critical judgment brought about not only an intellectual benefit but a financial advantage as well.

This start was not enough by itself. It was also necessary to bring teachers and parents together by means of a far-reaching recruiting campaign which managed to reach about 90 percent of the children in Austria within ten years. At first the success was almost overwhelming. A new area of publishing—the field of children's books—prospered in Austria where it had never existed before. With the help of the book club yearbooks, which include excerpts from outstanding children's literature, teachers worked to arouse children's interests in books and in purchasing them. It was soon evident, however, that the individual purchase of books was not enough to develop genuine readers. The book club, therefore, went a step further and began to promote the development of book stocks for the larger community as well as for the individual. Under the motto of creating "Opportunities to Read," the development of libraries in the classrooms of every Austrian school was initiated. The idea that "every child be confronted by books everyday," and that his mental growth and his delight in experience should be accompanied by books was well received.

Of approximately 25,000 classrooms, at least 20,000 classroom libraries were set up while the remainder were served by the less frequented central school libraries. Only a few progressive schools in wealthy neighborhoods had central school libraries in addition to the classroom libraries. Of course, access to books and the opportunity to read were effective—more children read than ever before, instruction became more lively and more fitting to children. We began to think that we had reached the heart of the matter. In our enthusiasm, however, we did not close our eyes to the fact that it could prove practical to make further investigation into the reading habits of young people.

Then in 1968 the great disappointment came. In spite of reduced prices through the Austrian Children's Book Club, the cooperation of 6,000 teachers, the continuous influence of parents, the opportunity to read a book in any classroom, the improved instruction through the use of children's books, and the fact that "the right book for the right child at the right moment" seemed to have been realized—in spite of all this success, the number of readers among children had not increased to a great extent. We looked for a reason.

Once again it was an encounter with America which helped. The coincidental visit of Helen Huus brought the writer's attention to the International Reading Association. After participating in the meet-

ings in Paris and Copenhagen, the writer read many IRA publications, subscribed to all three periodicals and began to look at the question of reading from a different angle—less from the standpoint of the book and more from the child's side, from the reader's viewpoint. We became especially interested in reading tests which hitherto had not existed in Austria. Through a far-reaching experiment we attempted to get an insight into the reading ability of Austrian children. A total of 40,000 children had their reading abilities tested through different methods. In the light of the results, we drew the obvious conclusion that that which seems clearly perceptible is often really discovered very late: Many children do not read books because they cannot read. We also discovered, though, that many children do read very well indeed. We looked for the reason and found that at school these children had not only acquired the ability and the skills to read but books had also from the beginning been placed in the foreground. And so the first motto received its paradoxical sequel: Many children do not read books because they cannot read; they cannot read because they do not read books. Now as a third step on the road to books as an aid to individual mental growth and a means toward perception of the world, a turnabout set in: The child himself became the starting-point; i.e., reading instruction which should help to bring child and book together was seen as the beginning.

The changing scene in reading

We tried to win over Austrian teachers by giving them examples of the new work being done in reading education throughout the world, especially in the United States. Fortunately at this point, a new school reform movement also began in Austria. Its goal was the differentiation and individualization of educational work as well as the establishment of the foundations for a lifelong desire for further education. Of course, the importance of books and reading was recognized by the people promoting this school reform, and the writer was entrusted with the task of the scientific administration of research in the field of reading being undertaken in the schools of Vienna.

The first year of this project brought an interesting insight, one worthy of special attention: It is not so much the method, the teaching of the various skills, as the "practice effect" that matters. We came to this conclusion through the combination of reading tests with "reader passports." In these passports not only test results were entered but also the titles of books read. The passport includes a list of books suggested for reading which are specifically fitted to the children's reading

scores. Here it becomes quite evident that the increase in reading ability is, on the average, nearly a parallel to the amount of material read.

Results of the experiments were published in pamphlets and in teacher's journals and helped to convince teachers of the importance of the "practice effect." In addition, the following explanation was propagated: Up until this time pupils had usually read only the normal textbooks in school (only born readers or children influenced by their environment took to reading). During the lesson the pupils usually read a couple of pages and were told by the teacher to study those pages at home so that they might be able to read them aloud well at the following lesson. Often the task was given to study some further pages at home for reading aloud during the next lesson. This work was done with little motivation and little interest. But from the mere volume alone, no greater practice effect could emerge from reading of a couple of pages. Those children who were avid readers, however, often read complete juvenile books by themselves at home. Instead of two or three pages read reluctantly (or mostly not at all), the amount read was often more than 150 pages. Accordingly, the practice effect was fifty times as great.

These figures were so convincing that school authorities, who had previously looked upon the reading of children's books as a harmless pastime and upon those teachers who enthusiastically spoke of children's books as unworldly idealists, finally saw how important children's books were for success in the classroom. Authorities were given undeniable evidence in tables comparing achievement with the number of books read. Now they understand Hauptmann's: "I did not learn to read at school but through *Robinson Crusoe* and Stevenson's *Treasure Island.*"

When teachers were asked how they had become readers, the typical answer was: "At best, school gave me the basis; I really became a reader through self-education, by means of the juvenile books I found." As reading is related to the volume of material read, the natural question is: "What can the teacher do to help not only the born readers but every student read, beginning with children's books?"

Various methods have been tried in Austria. It had been assumed earlier that the accessibility, the opportunity to read, was decisive and that children merely need have an ample supply of books at hand. As the reluctant readers simply did not use the classroom libraries, we recommended books of suspense and light literature to the whole class. In addition, books of the same title for each pupil were made available since only in this way could the teacher give the introduction.

Mere distribution with a recommendation and a statement on the importance of books usually had the following outcome: About 30 percent would finish the book in a couple of days, another 30 percent would need more than a week and the rest of the pupils would frequently make one excuse or another or would return the book without having read it. (Pupils certainly should not be forced to read!) It became obvious that children care little about the "importance" of books, as this point offers far too little motivation to start reading. So we asked ourselves: "Why do children read?" The answer was not difficult to find: Because children want an experience; because they want to abandon themselves to action and suspense. A new method for motivating reading—the lure into reading—resulted.

Current trends

At first glimpse, there seems to be nothing new behind this motto. Every teacher, every librarian does his best to lure children into reading. The stress here, however, is placed on the method and on the possibility of using it with all the pupils in a class at the same time. The first task was, therefore, to find books which were so easy, so interesting, and so exciting that all the pupils in a class would take to them. The books had to be of such literary value that the teacher would be willing to devote valuable lesson time to them. Besides, the price had to be low enough for the schools to provide each child in the class with each of the books. Paperbacks for young people were the answer. Since many schools did not even have access to paperbacks, other possibilities were, therefore, developed:

1. A total of 500 exchange circles were established in Austria to organize circulation of book boxes within school districts. The programme was administered from a national centre.
2. Libraries were found which were willing to purchase multiple copies of important books and to lend them to the schools.
3. Many schools themselves purchased boxes of books and exchanged them with other schools that had purchased other boxes.

Each pocketbook was handbound with book tape so that it could be read about 30 times. Approximately 15,000 of those boxes are now circulating in Austrian schools, a practice which allows for about 15 million readings before the books are discarded. New books are, however, bought regularly as it has turned out that one box will be "read to pieces" in about three years' time.

Each of these boxes includes theoretical advice for the teacher, a

so-called "literary-pedagogical work sheet" of four pages. The content, form, and style are discussed here for the benefit of the teacher who perhaps cannot find the time to read the book himself or does not have enough experience or time to search for its essential elements. In view of the fact that young people are primarily interested in the subject and the action and that they frequently reject being taught about the importance of books, books are now as a rule introduced to the pupils in the following ways:

1. The teacher gives an introductory talk about the title and front cover and asks: "What can these convey?"
2. The teacher or one of the good narrators in the class tells about the beginning of the book (at the most 20–40 pages).
3. The teacher or a good reader among the pupils reads aloud 5–15 more pages.
4. The books are then distributed, and the pupils are allowed to read on silently until about five minutes before the end of the lesson.
5. Before the end of the lesson everybody speculates briefly on how the book will continue. (Reflection and discussion are another motivation in the sense of "Reading as a Thinking Process.")

The children may now take the books home to continue reading on their own, with the result that 90, 95, or even 100 percent of the pupils complete the book with enthusiasm within a few days. Then following the reading at home, about a week after the introduction to the book, book talks are held. These talks are kept as short as possible—30–40 minutes. Only when a problem is very important and other books are also drawn upon as a comparison will the teacher spend two or, at the most, three lessons on one book, in which case, of course, important parts are reread aloud or silently. The literary-pedagogical work sheet supplies the teacher with a basis for the book talk, namely, to make the pupils aware of content and style and to guide them to that which is important, current, or lasting, thereby developing them into critical, creative, aesthetic, or working readers. Apart from the common book talk, several pupils think about the book and enter their opinions in their reader's diaries. Many Austrian teachers have introduced the reader's diary to their classes.

Many teachers have written that the pupils often then ask when the school will get another book box. Even pupils who had previously hardly read a single book have thus become enthusiastic readers. The secret of this great success lies in the fact that reading at home has been motivated in five different ways: through the promise made by the title and front cover, through the narration, by the oral reading,

by the silent reading, and through the discussion before the end of the lesson. The idea is to use this method at least four times a year, but an ideal would be sharing a book once a month. In many schools not only the reading ability of the pupils considerably improved but, what is even more important, a lasting interest in reading and lasting reading habits were developed in the children as well. Most of the children became enthusiastic readers, made friends with books, learned to think about a book, and learned to work with books.

If most of the children have become good readers and friends of books through this type of classroom reading (and this is often already the case in the second grade), then group reading will increasingly gain in importance after class reading. At this point, books are no longer read by all the pupils in the class but in groups of about five to seven. After they have read the book, the first five or seven readers introduce it to the class in forum discussion during which the children and the teacher ask questions. Then five to seven other children read the book and after they have read it, two or three more such groups are formed. The teacher will give his recommendations but should not force every pupil to read the book. He should view reading as an experience and not as an obligation.

Individualized reading occurs during which an hour of silent reading is introduced more and more frequently as completely individualized reading. The children use books from the classroom library, from public libraries, or from their own collections, which they often exchange among one another.

When the child is especially enthusiastic about his book, he may tell his classmates about it and suggest for whom he considers it especially interesting. However, the genuinely and really effective method presented in the "lure into reading" programme must not be obscured by these latter references to group and individual reading. Experience has shown that this procedure is effective and valuable because it helps not only the usual 20–40 percent of the born readers to be brought to books but the remainder—i.e., the majority of children—as well.

The way this programme has been organized in Austria, where the Austrian Children's Book Club assists in the raising of money and the distribution of books, could no doubt also be useful to other countries. Publishers of paperbacks for children in other countries might often be eager to undertake an experiment in one or more schools, and success will surely lead others to follow as more and more teachers become convinced that this method, through its important practice effect, produces more genuine readers than other approaches have been able to do.

But a word of warning is offered in the hope of avoiding a misunderstanding: The aim of this Austrian venture has never been to merely develop effective readers but to help bring about lifelong reading interests and lifelong reading habits as well. This goal cannot be achieved through the training of reading skills alone but only when the child has experienced the real joy of reading.

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Standardized Reading Tests

BAN THE TESTS is a demand that is being heard in meeting rooms and being read in newspapers from one city in the United States to another; the clamor is raised in board of education meetings, in the halls of state legislatures, in community action group meetings, and even in professional teacher meetings. The plea is one that is quite surprising—not surprising because various groups are attacking standardized tests, but surprising because the attacks are coming at the same time that similar groups are demanding more testing. It may be that those who are demanding more testing are finding that the traditional tests do not meet their needs; it may also be that the counter demands are coming from differing political factions. For example, those factions that want to use testing to continue discriminatory practices in schools may be supporting testing while minority groups may be attacking the tests. Regardless of the reasons, it is important that professional educators who use tests keep abreast of the current debate so they can provide thoughtful responses to the critics—regardless of the position taken—and even more importantly so that they know where or if tests will help in educational decision making.

The critics of testing

The attacks on tests have been based on many different issues. For example, an editorial in the *Los Angeles Times* on June 24, 1972, states, "Much time, effort, and money have been wasted in California on administering reading tests whose results are not only misleading but damaging." The editorial goes on to attack tests on the grounds that 1) test revisions are dependent on sales; 2) norms are not appropriate to certain population groups; 3) test scores often reflect test-wiseness; 4) honest students, those that leave blanks when they are not sure of an answer, may not score so well as students who guess when they don't know; 5) students who are motivated will do better than

those who are not motivated. The editorial concludes, "We would undoubtedly upgrade the level of reading in California if we would divert the money spent on testing to building better reading programs, supplying teachers with more and better books, and training teachers in the use of more effective approaches. Of course, smaller classes would help." If the advice in this concluding comment were followed, it is quite possible that a future editorial in the *Los Angeles Times* would be demanding to know whether the additional money would be spent wisely. Such an editorial may even suggest that children be given reading tests to find out whether the extra money is providing educational benefits.

A United Press story dated August 23, 1972, reports that IQ testing is under attack all across the country because the tests are culturally biased. The article reports that in San Francisco a federal judge has ordered city schools not to use IQ scores as the prime determinant in placing youngsters in classes for the mentally retarded; in New York, group IQ tests have been banned; in Sacramento, a group of Mexican-Americans have filed suit to halt the use of group tests because they discriminate against the Spanish speaking; and in Massachusetts and Connecticut, similar suits have been filed by minority groups.

The call for more testing

Similar stories can be found almost daily in newspapers and magazines across the country. But at the same time these stories appear, there also exists an appeal for more testing. For example, the targeted research program in reading is to be aimed at developing reading programs to help children read up to specified criterion levels. In a 1970 announcement (*3*) this point was made quite specifically:

> The U.S. Office of Education intends to support a five-phase program of research and development on reading to reach the following objectives: 100 percent of all persons not in permanent care institutions must pass, by age ten, a criterion-referenced test which is predictive of competent performance on a set of adult reading tasks selected to have a favorable return to the individual and to society in general.

James Allen, former U.S. Commissioner of Education, also alluded to the development of criterion tests in his speeches and comments on the Right to Read program. Allen stated that one in four students nationwide has significant reading deficiencies and that up to half of the students in large city school systems read below expectations for their age levels. He also stated that among unemployed people between the ages of 16 and 21, about half are functionally illiterate (*4*).

The single largest effort to conduct more testing is the project known as the National Assessment of Educational Progress (NAEP). Funded by the United States Office of Education, NAEP recently completed the assessment of reading skills of four age groups—9, 13, 17, and 26–35. This project is to provide educational and legislative decision makers with information to help them plan educational priorities.

Perhaps the strongest impetus for more testing has come about with the advance of the accountability concept. Accountability has been defined simply as holding the education profession responsible for the education of those under its control. Usually this definition has been interpreted to mean that tests should be given to the children to find out how well the educators have done their job.

Validity is the major concern

If a single conclusion can be drawn from both the attacks on testing and the demand for more testing, it may be that tests are needed that provide valid information. In most of the attacks on testing it is the validity of the tests that is being questioned; when demands for more testing are made, they are based on the need for valid information for decision making. The question of what can be measured has been continuously debated. Aren't there some things which are intrinsically immeasurable? Kaplan (*5*) answers this question quite cogently: "For my part, I answer these questions with an unequivocal 'No.' I would say that whether we can measure something depends, not on the thing, but on how we have conceptualized it, on our knowledge of it, and above all on the skill and ingenuity which we can bring to bear on the process of measurement which our inquiry can put to use."

Kaplan's position perhaps highlights the problem with the validity of standardized reading testing. Certainly too little is known about reading behaviors to develop completely valid reading assessments. However, falling short of the target we often measure only what can be easily measured. This process is satisfactory as far as it goes, but the second error is to disregard that which can't be measured or to give it an arbitrary quantitative value. The third problem is that we presume that what can't be measured easily really isn't very important. The fourth fallacy is to say that what can't be easily measured really doesn't exist. This is suicide (*6*).

The basic problem with testing is that we have not admitted the complexity of the problem; nor have we, knowing the complexity, been cautious in our use of standardized tests. Buros (*2*), in the Preface to the *Sixth Mental Measurements Yearbook*, laments the indiscriminate use of tests:

> Unfortunately, the rank and file of test users do not appear to be particularly alarmed that so many tests are either severely criticized or described as having no validity. Although most test users would probably agree that many tests are either worthless or misused, they continue to have the utmost faith in their own particular choice and use of tests regardless of the absence of supporting research or even of the presence of negating research. When I initiated this test reviewing service in 1938, I was confident that frankly critical reviews by competent specialists representing a wide variety of viewpoints would make it unprofitable to publish tests of unknown or questionable validity. Now 27 years and five Mental Measurements Yearbooks later, I realize that I was too optimistic.

The problem seems, therefore, to concern the truth about what is being measured. The critics complain that tests don't measure what certain population groups know; that tests are artificial demonstrations of behaviors and can be affected by motivation and "test wiseness." Certainly all of these concerns are valid. These are the complexities that every test developer must face. However, merely because these problems exist, we should not make the mistake of banning tests. Rather, we should set for ourselves the goal of better test development and better test use.

Criterion referenced tests—one suggested solution

Many educators are now advocating the use of criterion referenced tests because these tests are supposed to be free of many of the validity problems of standardized, norm referenced tests.

What is the difference between a criterion test and a standardized or norm referenced test? The differences that have been suggested indicate that criterion referenced tests can better serve instructional decision-making needs.

Criterion referenced tests are closely related to the old concept of a mastery test; the purpose of such a test is to measure achievement of a specific behavior and often to make a specific decision. For example, has Bill mastered the skills necessary to drive a car? Is Sam able to swim a mile? Or has Jerry mastered the essential beginning reading skills necessary to go on to the next phase of instruction? In each of these situations, the criterion is quite definite, and the student is assessed to determine whether he can complete the task.

A standardized norm referenced test is also concerned with assessing behaviors and making decisions, but the decisions are of a comparative nature. For example, how good a driver is Bill compared with Sam? Is Sam an adequate swimmer for his age and size? Or how good is Jerry's reading skill development compared to that of other students

at his grade level? Another way to consider the basic difference between the two types of tests is to consider the anchor point for each test. A norm referenced test is usually anchored in the middle of the ability of the group to be tested; the test performances will then tend to spread out so comparisons can be made. A criterion referenced test, on the other hand, is anchored at one end. The test developer is not interested in the spread of performances but rather in how many students are able to perform well enough to pass the anchor point.

Are there, however, two different types of tests or is there one test with two different types of scores derived from the test? In the preceding examples, on both the standardized and criterion referenced versions of the tests, Bill has to demonstrate his driving ability; Sam, his swimming ability; and Jerry, his reading ability. The differences are not in two different types of tests but rather in the different interpretations or scores derived from the tests.

Are standardized tests criterion referenced?

For most standardized reading tests, norm referenced scores are provided. These are the scores that are now being rejected by teachers. They are asking, instead, for information (test scores) that will help them make instructional decisions. Why did standardized test developers use norm referenced scores? The developers did so precisely because reading behaviors are so complex. It is difficult for reading specialists to agree on the specific subskills of reading, or to define exactly what reading vocabulary is, or to state specifically how many sight vocabulary words a child should know before he can begin reading a preprimer.

If it is difficult to answer these questions with any degree of universal acceptance by teachers, then it is easy to understand why test developers developed tests of general reading ability and then provided tables of comparisons for teachers to assess how their students performed in these general reading skills compared to other students. When we don't completely understand certain human behaviors, we often use comparisons rather than absolute standards. In athletics, the standards are comparative as they often are in personality assessment. Norms, therefore, provide a reference point for behaviors which are difficult to understand in the abstract.

This matter, of course, does not mean that standardized tests have no built-in criterion behaviors. Most standardized reading tests have blueprints that are carefully developed prior to the establishment of the test. These blueprints define the behaviors to be measured, describe the way in which they will be measured, and provide specifica-

tions for the selection of content and the development of items. These tests are, therefore, criterion referenced; but the test publishers do not know what score to provide a teacher. Some teachers want only comprehension scores related to how well students can read particular levels of a basal reader; others want only to know how many Dolch words a child can pronounce; others want to know whether a student has mastered enough skills to use a dictionary independently; and still others want to know whether a student can read a newspaper independently. These are all valid questions, and there are many others; it is this myriad of questions that is the problem. What criterion scores should a publisher provide?

The classroom teacher is the solution

One immediate solution is to place the problem squarely with the teachers who need to make educational decisions. Teachers should address themselves to the following issues before seeking any means of collecting information:

1. Decide what you mean by reading.
2. Develop instructional goals based on your definition of reading.
3. Study the learning environment for each child.
4. Redefine your instructional goals based on the study of each learning environment.
5. List instructional decisions.
6. List options and consider their feasibilities.
7. State information needs for each decision.
8. Select, devise, and use information collection strategies.

The essential step in this list is defining reading. Before anyone begins to systematically teach any set of behaviors, it is absolutely essential that the set of behaviors be defined. This requirement holds true whether the behaviors being taught are chess playing, swimming, criticizing literature, or reading. There are times when a teacher does not define the reading behaviors he is teaching because he mechanically implements a specific set of instructional procedures outlined for use with a specific set of materials. In these cases it is the author of the instructional materials who has defined reading, and the author of the materials is, in fact, the teacher. The person presenting the materials (who is erroneously referred to as a teacher) is just that, a presenter of materials, and probably could be replaced by a programed machine of some sort.

It is quite possible that the teacher who works through the chal-

lenge of developing a workable instructional definition of reading will find that most standardized reading tests do not match his needs. It is, however, more probable that the teacher will find that he needs to use a variety of information collection procedures including sections of standardized tests, informal assessments, and daily classroom observations.

Summary

There seem to be two opposing positions regarding the use of standardized reading tests, those calling for a ban on testing and those advocating more testing. Further both sides seem to be concerned about the validity of the tests. Criterion referenced tests have been proposed as one solution to this problem. The argument is made that all tests are criterion referenced tests; and it is the teacher, the instructional decision maker, who is the key to the better use of tests. Only as the teacher works through the problems of defining reading can better reading assessment be expected.

This argument should not lead one to believe that all the problems of testing can thereby disappear. Indeed, test developers need to keep attuned to various theories of reading; they need to be conscious of the concerns being raised by minority groups; and perhaps, most importantly, they need to describe more completely the definitions of reading embodied in their tests.

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Preventing Reading Difficulties

THERE SEEMS little doubt that reading disability is the major scholastic problem in our schools. Reading disability among adults is a personal, social, and economic problem, not only in underdeveloped and semi-developed countries but also in developed ones. Estimates of adult illiteracy range from 85–90 percent in underdeveloped countries (*38*) to somewhere between 8 percent (*7, 28, 31*) and 15 percent (*7, 29, 31*) for developed countries.

Inadequate reading performance is typically reported as a common characteristic in the majority of delinquency cases. For instance, 75 percent of delinquent children in New York are poor readers (*19*) and, furthermore, 90 percent of school dropouts also have reading problems (*29*).

In the case of older persons, Marksheffel (*29*) states,

> Eighteen million adults (in the U.S.A.) who will be among the first to lose their jobs through automation will find it almost impossible to prepare themselves for other jobs because 15 million are functionally illiterate and the remaining 3 million are nonreaders.

Throughout the world there are some 783 million illiterate adults (*38*) and, while the percentage may be decreasing, the number of cases is increasing (*38, 39*).

What can be done to alleviate the problem? For how many school pupils can successful treatment be made available? Nichols (*24*) states that, of the reading problems in developed countries, some two-thirds can be aided by suitable programs. Other estimates extend as far as four-fifths (*9*). Numbers and percentages vary from expert to expert, from year to year, and according to one's basic rationale. What has been clear to teachers of reading for many years is that there is a problem of considerable magnitude and one that can be at least partially solved.

In this paper it is proposed that current learning theory suggests fresh ways of combining and organizing the variables in the reading situation so that some of the major obstacles to literacy may be overcome. This point of view will be exemplified by reference to two problem areas—sex

differences in reading achievement and disadvantaged children's reading performances—and to one major contribution from learning theory.

Sex differences

Researchers are unanimous concerning the sex discrepancies in reading ability to be found among remedial cases—in English speaking countries boys are invariably in the majority. The actual proportions fluctuate from report to report, but 80–90 percent male predominance is common (*17, 35, 42*). The reasons postulated for this disparity are various. Contrary to earlier opinions, most writers now argue that it is unlikely that genetic factors are significant determinants. Austin, Clark, and Fitchett (*4*) state,

> Research indicates that boys and girls arrive at the first year in school with essentially the same vocabulary capabilities. Ames' study reports ". . . no significant differences were found in the size of basic understanding vocabulary of grade one boys and girls." In effect, boys and girls have equal verbal foundations upon which to build their reading and language understandings. Differences in language development, then, occur *following entry to school* even though the boys and girls are provided with the same materials for learning and subjected to the same methods of instruction. The fault, then, would appear to be inherent within the program and not within the boys themselves.

However, there is evidence of perceptual differences between the sexes; girls more readily perceive not only the desires of teachers but also the expectations and desires of peer groups (*40*). Furthermore, in the typical classroom, more girls than boys are motivated to respond according to expectations, once they have perceived what is expected of them.

Cultural definition of male and female roles may be a potent factor differentially influencing the school entrant s adjustment to a new environment. For his first five or six years a boy's socialization is usually such that he perceives and develops a normal boy's role: being untidy, boisterous, active, robust, curious, outspoken, and adventurous. He quickly becomes aware of the male role in society, and what is more important, he also perceives the female role. He then enters the infant (primary) room and finds that he is expected to perform in ways which he has learned are effeminate. He must be quiet, tidy, obedient, clean, neat, and mannerly. Faced with two or three years of such role conflict it is little wonder that many boys do not entirely accept infant teacher values, one of which is successful performance of reading tasks. A girl may find it relatively easy to shift from the mother model to the female teacher model, but to a boy the father model and the female teacher model are somewhat discrepant.

New Zealand education authorities have become increasingly concerned about the abrupt role shift required by boys and in recent years have advertised many infant teaching positions as "male or female." Now an increasing number of male supervisors of junior classes exists there.

Pertinent and recent research data reveal significant differences in the reinforcement patterns accorded boys and girls at school. It is increasingly apparent that boys evoke considerably more negative sanctioning behavior from their teachers than do girls. In the words of Brophy and Good (*10*):

> The largest and most obvious difference in evaluative comments occurs with teachers' criticism and disapproval, which are directed far more frequently at boys.

Moreover, work in New Zealand (*3*) suggests that where parents and teachers are in basic disagreement on matters of educational policy, even though they have never met, the parents' male offspring receive significantly more negative sanctioning from the teachers than any other group of pupils; in fact, almost twice as much!

Other researchers have also recorded aspects of boy bias (*23, 27, 30*). Not only is teacher-provided reinforcement of boys negative in form and consequence, but the early reading materials, which might ordinarily be assumed to have an intrinsic motivating force, also tend to be negative in their appeal to the immature male.

The need to consider more closely the position of the immature male in our primer classes is even more noticeable when heed is paid the comments of reading experts regarding these early materials (which in this country are with very few exceptions prepared by female writers). For instance, Heilman states,

> Basal reading materials are less motivating and satisfying to boys than to girls. The rationale behind this hypothesis is that the rather sterile, repetitious vocabulary and the rigid conformist mood, tone, and atmosphere contained in and conveyed by the preprimers, primers, and early readers are considerably less challenging to boys than to girls. It is often alleged that the content is a far cry from what the culture has taught to an expects from boys. Therefore, beginning reading which should be an exciting, challenging new adventure is actually a dull regressive sort of experience unless the teacher can project a geat deal into the material.

Lecky further says,

> . . . to most boys the reading material in elementary readers seems infantile and effeminate.

Byers adds,

> Differences in interests of boys and girls in the study suggest that current content may more often be geared to the major interests of girls than boys.

Chall aptly summarizes by saying,

> Even the most widely used materials are more the product of convention than of research data.

To be quite fair, however, it must be stated that some recent New Zealand writers have been aware of this problem and have produced several good readers with definite appeal to boys.

Some reported characteristics of disadvantaged groups

The second problem area to be considered is the reading performance of those children who are often classified as disadvantaged or deprived. Difficulties experienced by these children may be, in degree at least, an amplification of those experienced by the many boys who are failing in reading.

Reissman defines thirteen characteristics of children reared in culturally disadvantaged groups. While all warrant prudent reflection, several are particularly pertinent for this paper. Coming from predominantly male-centered social groups he says,

> . . . the child tends to value masculinity and attendant actions, viewing intellectual activities as unmasculine. He often is slow but can be persistent when content is meaningful and valued.

The point already made is that early reading materials and early primer environments are invariably nonmasculine and as such are decidedly nonstatus-conferring to disadvantaged boys. This argument is further strengthened by Cohen who notes also that patriarchal characteristics of the culture and the fact that status among boys tends to be emphasized by displays of physical force whenever the male role is threatened. It would appear then that the majority of reading materials discriminate against boys, but doubly so against boys from so-called disadvantaged situations.

A further characteristic of those in this group is their lack of reflection. A need for immediate gratification is one outcome of their social and economic circumstances (*5, 21*), and this need brings consequences in immediate reward and punishment and a resistance to any type of future orientation. Their typical behavior is impulsive and lacking in consideration of long-term consequences, thus future-oriented motivation to learn to read is totally lacking.

We know that the teacher's most used form of motivation, verbal approval, tends not to be effective with this group of children (*6*) probably because such parent approval as they do experience develops an expectation of a reward system quite dissimilar from that employed in schools. Staats puts this matter in other words:

> Typically . . . such children do not as a result of their home experiences acquire "reinforcer systems" appropriate for maintaining learning in the traditional classroom.

These two features—masculine orientation and an inappropriate school-reward system—suggest that the time is ripe to consider new motivation organisation such as need-directed motivations, calculated stimulation, and situation-structured success.

Parents of disadvantaged children tend to discourage imagination and to view it as lying (*8*). Thus it seems likely that early reading materials would be more effective if they were factual rather than derivations from socially based fiction, as is the case at present. This approach would overcome the problem of lack of identification of the pupil with the social situation depicted in the story.

Riessman has already drawn attention to this problem. He says,

> The reading texts used in classrooms typically contain materials far less attuned to the interests of the disadvantaged.

Clark adds,

> Some attention should be given to the textbooks and materials which are used in our classrooms in order to be sure that they do not directly or indirectly add to the burdens of already psychologically overburdened disadvantaged minority group children. Indeed it might be necessary to select or devise materials which would raise the self-esteem of these children.

Ausubel, however, is more specific,

> In my opinion, of all the available teaching strategies, programed instruction minus the teaching format has the greatest potentialities for meeting the . . . criteria of an effective and appropriate approach to the teaching of culturally deprived pupils.

Reinforcement in reading

It is pertinent that Ausubel should suggest programing techniques for the disadvantaged groups. Two basic principles of programing are that 1) learning steps should be small and easy and 2) there must be immediate feedback of learner responses. The small, easy steps are conducive to successful participation, and the immediate feedback provides instant gratifi-

cation. Two essential features, mentioned earlier, are thus structured into the learning situation. By introducing elements of programing theory one is simply saying that an attempt is being made to implement a reinforcement schedule which is appropriate to the child's early reading needs. Incidentally, it is surprising that only about 15 percent of modern reading texts mention the term "reinforcement."

Modern theories of language acquisition usually subscribe to some variety of reinforcement theory (*12*). The child tends to learn whatever responses are positively reinforced, either by extrinsic rewards such as praise and attention, by an intrinsic reward such as knowledge of success, or even by some indirect secondary cue of eventual reward. Those responses which receive no reinforcement or which receive negative reinforcement will tend to become extinguished.

Research would suggest that both extrinsic praise and the promise of eventual reward are considerably less effective for disadvantaged children. And note that constant teacher prompting and correction in the oral reading situation is a form of negative reinforcemen. (*4*). Staats (*37*) comments on the inappropriateness of present reinforcement provisions in contemporary schoolrooms:

> Our system of reinforcement in the school situation has developed in the practical task of educating children. It has never been subjected to systematic study and to research and development that is based upon basic principles of behavior. While this is not necessarily a condemnation, the fact is that many children do not profit from their educational experience. For some children the experience in its aversiveness and failure engenders behaviors that are undesirable in society. For many others, educational experience does not produce maximal development of the various skilled repertoires.
>
> It is suggested that one of the reasons for this concerns the inappropriate nature of the reinforcement system in the school for many children. While it is important to examine ways of making children's reinforcement system appropriate for the school, it is also reasonable to examine the possibilities for producing more effective reinforcement systems in schools, at least for the children for whom the present system is ineffective.

To summarize, a school activity such as reading does not improve, and progress is not forthcoming unless positive reinforcement in some form is either inherent in the program or is consciously introduced. Children with reading problems, whatever the initial causative factors may be, are not succeeding in the activity, are therefore not being reinforced and tend to withdraw from these failure-laden situations. These children dislike reading, and they spend less time involved in the activity; thus the original causation is multiplied and aggravated.

In motivational terms, the ultimate aim in teaching reading is to guide

children to a level of successful personal reading such that they develop internal cycles of self-reinforcement. Success and achievement produce internal reinforcement schedules which spur pupils to high peaks of ability. And strangely enough, although initial reinforcement must be strong and consistently maintained, less and less reinforcement is necessary as the pupil progresses, even though the material increases in difficulty. This matter is analogous to gradually raising the ratio of responses to reinforcers in terms of ratio schedules of reinforcement (*36*).

It is often stated that one of a teacher's tasks is to motivate his students. However, just as the physician cannot heal a patient but can merely stimulate the body to heal itself, so the teacher cannot provide motivation but can only stimulate what is already present. This fact implies in the reading context that the material used must interest the child and that he must achieve rapid success in the reading of it.

The thesis here, then, is that by more careful organization of certain variables within the reading matter, greater interest and expectation of interest can be provided, and by due attention to further variables success can be assured to a degree hitherto unattained. Many teachers have in the past concentrated on the motivating effects of teaching method and warm teacher-child relationships and have largely ignored the advantages to be obtained from logical development of more pupil-relevant reading matter along directions suggested by learning theory.

To be more specific, the relevant variables could be summarized as follows:

1. Most early reading books involve socially based fiction. This factor undoubtedly evokes interest from some sections of the primer population but leaves other sections relatively unmoved. The suggestion then is that factually based material be added in order to cater to the interests of certain neglected groups of children. In addition to interest, factually based topics may also promote motivation of curiosity. A corollary of this proposition is that the first view a child has of a book, i.e., the front cover, must arouse an expectation of interest and/or curiosity.
2. When a child completes a book, he obtains a feeling of achievement, and this in itself is a motivator. Therefore, it would seem sound policy to develop many small, short readers in lieu of one large book. This practice would ensure more progressive and immediate satisfaction and incidentally would mean that each unit of the series would be fresh and novel to the child in that he would be unable to preview it prior to instruction as many children now do with their bulkier readers.

3. A proportion of the reading material should be prepared by men. Subtle female identification cues in topic, wording, and characterization are factors which tend to discriminate against boys.
4. One of the reasons that programed texts are successful is that, because of small steps in content and simple, progressive questions, the learner meets consistent success and is thus reinforced as he proceeds. Readers incorporating one or two simple questions and answers per page would not only reinforce the content retention but, what is more important, would also provide a second-order reinforcement for the process of reading itself.

Classroom research in psychology and sociology is providing teachers with an increasing volume of relevant data. Let us apply it toward the betterment of reading standards.

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APPENDIX

Charter of the Book

Preamble

Convinced that books remain essential tools for preserving and diffusing the world's storehouse of knowledge;

Believing that the role of books can be reinforced by the adoption of policies designed to encourage the widest possible use of the printed word;

Recalling that the Constitution of the United Nations Educational, Scientific, and Cultural Organization calls for the promotion of "the free flow of ideas by word and image" as well as "international cooperation calculated to give the people of all countries access to the printed and published materials produced by any of them";

Recalling further that the General Conference of Unesco has affirmed that books "perform a fundamental function in the realization of Unesco's objectives, namely peace, development, the promotion of human rights, and the campaign against racialism and colonialism";

Considering that the General Conference of Unesco has proclaimed 1972 International Book Year, with the theme "Books for All"; the

International Community of Booksellers Associations
International Confederation of Societies of Authors and Composers
International Federation for Documentation
International Federation of Library Associations
International Federation of Translators
International PEN
International Publishers Association

Adopt unanimously this Charter of the Book, and call upon all concerned to give effect to the principles here enunciated.

Article I

Everyone has the right to read

Society has an obligation to ensure that everyone has an opportunity to enjoy the benefit of reading. Since vast portions of the world's population are deprived of access to books by inability to read, governments have the responsibility of helping to obliterate the scourge of illiteracy. They should encourage provision of the printed materials needed to build and maintain the skill of reading. Bilateral and multilateral assistance should be made available, as required, to the book professions. The producers and distributors of books, for their part, have the obligation to ensure that the ideas and information thus conveyed continue to meet the changing needs of the reader and of society as a whole.

Article II

Books are essential to education

In an era of revolutionary changes in education and far-reaching programmes for expanded school enrollment, planning is required to ensure an adequate textbook component for the development of educational systems. The quality and content of educational books need constant improvement in all countries of the world. Regional production can assist national publishers in meeting requirements for textbooks as well as for general educational reading materials which are particularly needed in school libraries and literacy programmes.

Article III

Society has a special obligation to establish the conditions in which authors can exercise their creative role

The Universal Declaration of Human Rights states that ". . . everyone has the right to the protection of the moral and material interests resulting from any scientific, literary, or artistic production of which he is the author." This protection should be also extended to translators, whose work opens the horizons of a book beyond linguistic frontiers, and thus provides an essential link between authors and a wider public. All countries have the right to express their cultural individuality and in so doing preserve the diversity essential to civilization. Accordingly they should encourage authors in their creative role and should through translation provide wider access to the riches contained in the literature of other languages, including those of limited diffusion.

Article IV

A sound publishing industry is essential to national development

In a world in which there are sharp disparities in book production, with many countries lacking adequate reading materials, it is necessary to plan for the development of national publishing. This work requires national initiative and, where necessary, international cooperation to help create the infrastructure needed. The development of publishing industries also entails integration with education and economic and social planning; the participation of professional organizations, extending in so far as possible across the entire book community through institutions such as national book development councils; and long-term, low-interest financing on a national, bilateral, or multilateral basis.

Article V

Book manufacturing facilities are necessary to the development of publishing

In their economic policies, governments should ensure that necessary supplies and equipment are available for the development of an infrastructure for book

manufacture, including paper, printing, and binding machinery. The maximum use of national resources, together with eased importation of these supplies and equipment, will promote the production of inexpensive and attractive reading materials. Urgent attention should also be given to the development of transcriptions of oral languages. Those concerned with the manufacture of books should maintain the highest practicable standards of production and design. Particular efforts should be made for the manufacture of books for the handicapped.

Article VI

Booksellers provide a fundamental service as a link between publishers and the reading public

In the forefront of efforts to promote the reading habit, booksellers have both cultural and educational responsibilities. They play a vital role in ensuring that an adequate and well-chosen range of books reaches the reading public. Special book post and air freight rates, payment facilities, and other financial incentives aid them in carrying out this function.

Article VII

Libraries are national resources for the transfer of information and knowledge, for the enjoyment of wisdom and beauty

Libraries occupy a central position in the distribution of books. They are often the most effective means of getting printed matter to the reader. As a public service, they promote reading which, in turn, advances individual well-being, life-long education, and economic and social progress. Library services should correspond to each nation's potentialities and needs. Not only in ethics, but especially in the vast rural areas which frequently lack book supplies, each school and each community should possess at least one library with qualified staff and an adequate book budget. Libraries are also essential for higher education and scholarly requirements. The development of national library networks will enable readers everywhere to have access to book resources.

Article VIII

Documentation serves books by preserving and making available essential background material

Scientific, technical, and other specialized books require adequate documentation services. Accordingly, such services should be developed, with the assistance of governments and all elements of the book community. In order that maximum information materials may be available at all times, measures should be taken to encourage the freest possible circulation of these essential tools across frontiers.

Article IX

The free flow of books between countries is an essential supplement to national supplies and promotes international understanding

To enable all to share in the world's creativity, the unhampered flow of books is vital. Obstacles such as tariffs and taxes can be eliminated through widespread application of Unesco agreements and other international recommendations and treaties. Licenses and foreign currency for the purchase of books and the raw materials for bookmaking should be accorded generally, and internal taxes and other restraints on trade in books, reduced to a minimum.

Article X

Books serve international understanding and peaceful cooperation

"Since wars begin in the minds of men," the Unesco Constitution states, "it is in the minds of men that the defences of peace must be constructed." Books constitute one of the major defenses of peace because of their enormous influence in creating an intellectual climate of friendship and mutual understanding. All those concerned have an obligation to ensure that the content of books promotes individual fulfillment, social and economic progress, international understanding, and peace.

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